

Railway Age

Vol. 87, No. 23

December 7, 1929

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The Problem of Automatic Highway Crossing Protection

In view of the number of serious accidents that are occurring at highway-railroad crossings it is evident that some means must be devised to improve the protection at such locations by establishing more uniform signal indications and by inaugurating a logical program for more extensive installations.

Year after year, while the railways are reducing the number of accidents at other places, the number at highway crossings continues to increase. In spite of the large increase in the volume of traffic this year, there was a reduction in the first seven months of the year of 26 in the number of persons killed on railway property at other places while there was an increase of 60 in the number killed at highway crossings. The railways are solving their own problem of reducing accidents to passengers, employees and other persons for whose safety they are responsible. It is principally the duty of public authorities to reduce hazards at railway and highway crossings, because the increase in these hazards is due to the increased use of highways by motor vehicles, and to a constant increase in the number of grade crossings which is caused by public authorities opening new highways across railway tracks.

Some accidents have been caused by the fact that the motorist did not realize that he was approaching a railroad track. A man who drove into the side of a moving freight train at night recently stated that he had no intimation that he was approaching a railroad until he was too close to stop his car. It is true that in some states approach warning signs have been installed several hundred feet from the crossing, while in other states, such as Missouri and several of the New England states, reflector type signs are being used which are plainly visible under the glare of the automobile headlight at night, as well as in daylight. On secondary highways, especially where motorists have an open view of the track, such fixed signs should be adequate.

What Kind of Protection Is Needed?

Where the street traffic is heavy, and the view of trains approaching at high speeds is obscured, it is the

opinion of many well-informed men that some kind of an obstruction, such as a gate, is needed, which should be in service 24 hours a day. In many places it is considered practicable to use full-time automatic gates.

At important highways, and also in towns and cities where the street traffic is not too heavy and the speed of trains is reduced, automatic warning signals should be used. In an effort to standardize such signals, the American Railway Association, Signal Section, defined the proper aspect as, "When indicating the approach of a train, the appearance of a horizontal swinging red light and/or disc". This includes both wig-wag and flashing-light signals, which have been installed so extensively that many motorists have come to realize that such an indication means that a train is approaching. To further increase the effectiveness of these signals, several roads have pursued educational programs in schools, at state and county fairs, in stations, etc., in order to teach the public the meaning of these signal indications. In spite of all of these measures, however, many motorists consider an automatic highway-railroad crossing signal as a *caution* signal, and although they may realize that the aspect indicates that a train is approaching, they are so confident that they can cross the track ahead of the train that they proceed past the signal, often with disastrous results.

Increased Use of Flashing-Light Signals

Some authorities contend that there is no way to protect such persons against accident. However, if better protection is available it should be used, and in line with this idea the authorities in several states, as well as the managements of certain railroads, have decided that the flashing-light signal, indicating the approach of a train, can be made more effective by combining with it an automatically-operated stop sign. Such roads as the Wabash and the Grand Trunk Western are mounting an electrically-lighted sign reading "STOP" between the two flasher lights, this sign being illuminated while a train is approaching and occupying the crossing. The state of Minnesota has adopted a

signal which includes not only the flashing light, but also an auxiliary automatic movable stop sign displayed only when a train is approaching, and which is illuminated for night indication. This signal is being installed voluntarily by the Chicago, Milwaukee, St. Paul & Pacific in Illinois, with the approval of the authorities, while in Wisconsin its use is required where flashing-light signals are being installed. The Southern has installed a considerable number of the regular red and green stop-and-go signals, similar to the ordinary street traffic signals used in cities, while the Atlantic Coast Line, the Gulf, Colorado & Santa Fe, and the Chicago & North Western have installed stop-and-go street traffic signals as highway crossing signals, where such signals fit in as a part of the community traffic system.

It seems evident, therefore, that a considerable number of men who are making a study of this subject are of the opinion that neither the wig-wag nor the flashing light signal alone is adequate for all locations, and that some auxiliary device is required which will give an absolute stop indication.

Again, several accidents have occurred where the motorist has waited until the passing train had cleared the crossing and then started across the tracks, only to be hit by a train on another track. To prevent such accidents the Southern Pacific has installed an auxiliary device at several such locations which gives a distinct indication of the approach of a second train.

Further, in order that the automatically-controlled protection may be more practicable from the viewpoint of the motorist, the time of operation of the signal prior to the arrival of the train at the crossing should be uniform, for both fast and slow trains. Likewise, false operation caused by switching movements or standing trains should be eliminated wherever possible by the use of time-element relays and short starting sections.

A Duty of Government

The railroads have spent millions of dollars installing thousands of automatic signals, but the railroads alone cannot meet the requirements brought about by modern conditions. They operate practically the same mileage of lines as 20 years ago, and although the trains are longer, they are not as numerous. The grade crossing problem has been brought about by the phenomenal increase in the use of automobiles by the general public, and it is time that some one beside the railways should contribute in a financial way to the solution of the problem. The federal government and some of the states have appropriated funds or designated that certain percentages of the gasoline tax should go toward defraying the cost of the separation of grades, but in only a comparatively few cases has any of this money been expended for the installation of signals.

Furthermore, although several of the states have developed standards for signals, some of which have merit, the variation in their requirements is so wide as to create confusion in the mind of the motorist, while further reports of recent hearings and orders indicate still

more complications in the offing. For this reason some concerted action should be taken without further delay to establish a national policy on automatic highway crossing protection. Many associations are making independent studies of this problem, but more progress could be accomplished by co-operation.

It is suggested that a committee be formed with representatives from the different interests involved, including the American Railway Engineering Association; the American Railway Association, Signal Section; the Interstate Commerce Commission, Bureau of Safety; the Department of Agriculture, Bureau of Public Roads; the National Association of Railroad and Utilities Commissioners, and the Association of Highway Engineers. Having arrived at certain standards and proposed programs, such a committee could then promote legislation to put these suggestions into effect.

In co-operation with local and state authorities and the representatives of the railroads, surveys should be made of all hazardous crossings and a definite program of construction planned that will provide adequate protection within a few years. Of the more than 250,000 highway-railroad crossings in the United States, only about 40,000 are now protected by other than fixed signs, while during 1928, only about 1,500 crossings were equipped with automatic signals. A much faster construction program must be adopted, supervised and financed jointly by the public and the railroads.

Unprofitable Passenger Business

OME statistics recently compiled by the Interstate Commerce Commission show that the railways of different parts of the country derive widely differing results from their passenger service. It is impossible to divide with complete accuracy between freight and passenger service, the operating expenses incurred, but the commission uses a formula for dividing them which indicates approximately the results obtained. Division of expenses by this method shows that in 1928 the western group of roads suffered a net loss of \$11,337,186 from their passenger train service, operating expenses assigned to it exceeding by this much the earnings from it. The railways in southern territory (including the Pocahontas region) incurred operating expenses for passenger service which were almost exactly equal to their earnings from it. The railways in eastern territory had net earnings of \$114,414,000 from passenger service.

The total earnings of the Class I roads from passenger train service in 1928 were \$1,270,464,706. The operating expenses assigned by the commission to this service were \$1,167,823,870, leaving net earnings of \$102,640,836. The ratio of passenger train expenses to passenger train earnings was 91.69 per cent. In other words, for every dollar of passenger train revenues, the roads spent almost 92 cents for rendering passenger train service. The commission merely ap-

portions operating expenses, and does not try to show how much of the investment in railways has been made to render passenger service.

The operating revenues derived from freight service amounted to \$4,816,618,634. The operating expenses assigned to freight service amounted to \$3,254,038,603, being 67.38 per cent of total freight earnings. Obviously, most roads have to rely upon the net earnings from freight service to pay practically the entire return upon their investment. In southern territory the return upon the entire investment was derived from freight earnings. In western territory freight earnings not only had to pay the entire return upon investment, but also to bear the operating deficit incurred in rendering passenger train service.

The eastern district is divided into three regions—New England, Great Lakes and Central Eastern. In all these regions the railways derived net earnings from their passenger business. In the entire eastern district passenger train expenses consumed 82.24 per cent of passenger revenues, while freight train expenses consumed 70.57 per cent of freight revenues.

In the southern district there are two regions—Pocahontas and Southern. The Pocahontas lines, which are large coal carriers, operated their passenger service at a loss, while the other railways in the south as a whole made some net earnings from it. In the entire southern district freight expenses consumed 66.75 per cent of freight earnings, while passenger train expenses consumed just about 100 per cent of passenger earnings.

The western district is divided into three regions—Northwestern, Central Western, and Southwestern. The Northwestern roads incurred a net operating loss of almost \$15,000,000 on their passenger train service. The Central Western roads made net earnings of over \$11,000,000 on their passenger train service. The Southwestern roads incurred a net loss of more than \$7,600,000 on their passenger train service. In the entire western district freight service expenses were 64 per cent of freight earnings, while passenger service expenses were 102.27 per cent of passenger earnings.

The earnings from passenger train service include not only those derived from carrying passengers, but also those derived from carrying mail and express. While in no part of the country can passenger train service be said to be profitable as compared with freight service, the eastern lines do get a substantial amount of net earnings from it.

The principal explanation of the difference in results in different territories is to be found in the widely differing densities of population, and the consequent differences in densities of passenger traffic. There is a minimum amount of passenger train service that a railway must render, almost regardless of how small its passenger business may be, and if its passenger business is light it must incur a relatively large amount of operating expense in rendering it. In the eastern district the railways, on the average, carry about 310,-

000 passengers one mile annually on each mile of road, and about 75 passengers per train. In the southern district the average density per mile of road is less than 100,000 passenger miles annually, and the average number of passengers carried per train is about 44. The western group of roads render as much passenger service, measured by passenger train miles as the eastern group, but their average density of traffic per mile is only about 80,000 passenger miles, or about one-fourth as great as that of the eastern lines, and they carry an average of only 45 passengers per train.

Since 1920 the decline in travel by rail in the densely-populated east has been only about 18 per cent while in the south it has been 32 per cent and in the west, 40 per cent. Motor competition for passenger business has been much more effective in territories where population is sparse and highways are not congested than in territories where population is dense and there is much highway congestion.

In view of the fact that the passenger business of the railways always has been relatively unprofitable, and is relatively more unprofitable now than ever before, a question might be raised as to why they have recently increased the speed and otherwise improved the service of their through passenger trains. The reason is that they incur their losses on their local short haul business, while their through trains, because of the larger number of passengers carried, usually make comparatively good earnings, and they are influenced by competition to improve the part of the service the direct operating expenses of rendering which are exceeded by the earnings from it.

The Oil Can Passes

THE engineman's oil can, long an honored emblem of railroading, is apparently destined to go the way of many other landmarks which stand in the path of progress. At the American Railway Association, Mechanical Division, meeting in Los Angeles, Cal., last June, the Committee on Lubrication stated that the present general method of lubricating locomotive motion parts, engine trucks, trailer bearings, etc., with engine oil is unsatisfactory and unfitted to modern operating conditions. It said further that positive pressure lubrication, applied to guides, valve motion parts, spring rigging, stokers, etc., by enginehouse forces at originating terminals instead of by enginemens on the road, would render the use of the engineman's oil can entirely unnecessary and permit the operating of locomotives for distances up to 1,000 miles without further lubricating attention.

The latest proof of the soundness of the committee's contention was afforded on November 19 when an Illinois Central Mountain type, coal burning locomotive, No. 2421, equipped with a positive pressure lubrication system, was operated successfully in regular passenger service from Chicago to New Orleans, La., a distance

of 921 miles, without the addition of any lubricant en route except the usual thin wafer of grease to the main and middle connection rod cups at division terminals.

Details of this interesting test run, given in an article elsewhere in this issue, indicate that, by careful firing, a badly clinkering coal can be burned successfully in long run service. The same fire was maintained throughout the test run and the only attention given was the shaking of grates and dumping of ash pans at division terminals. It is interesting to note that a floating bushing type of engine truck bearing, which used only six ounces of grease per bearing, contributed to the success of this run. The run was completed on time in spite of a total of 1 hr. 57 min. delays.

Are We Approaching the Limit for Expenditures?

IN recent months much publicity has been given, and properly so, to the large expenditures which the railways have made for the improvement of their properties, and particularly their roadway facilities, during each of the last seven years. Never before have they spent so much money for the strengthening of their tracks and related facilities, and it requires only the most casual investigation to show that these expenditures have made possible in no small measure the improvement in operation which has been so marked. At the same time the very magnitude of these expenditures has given rise to doubt in some quarters as to whether the roads are not approaching the time when they will be unable to justify further capital outlays. In other words, the question is being raised as to whether the railways, or at least the most progressive, may not be approaching the point where additional expenditures will cease to yield an adequate return on the investment.

Consider, for illustration, the rail, which is commonly recognized as the basic unit of the track structure. For years maintenance of way officers contended that the rail had failed to keep pace with the loads placed on it and that the factor of safety was being reduced to the point of danger. Within the last three or four years, however, there has been a marked increase in the weight of the rails installed in main lines. This is evidenced best by the fact that whereas as recently as 1919 less than 25 per cent of the rails rolled were of sections weighing 100 lb. per yd. or more, over 72 per cent of the tonnage rolled last year was of these sections. In this interval of only 10 years the 85-lb. and 90-lb. sections which were standard for heavy traffic lines have given way to those of 110 lb. and 130 lb.

Such a transition involves heavy expenditures chargeable to capital account as well as to operation, not only for the added weight of the rail itself but also for the tie plates, joints and other fastenings that go with it. Such expenditures give rise very naturally to a question as to the justification for a particular section, as com-

pared with another of greater or lesser weight. In other words what is the economical section for a given line—traffic and other local conditions considered? Within limits, this is a question which is capable of analytical solution. Yet, surprisingly little attempt has been made to approach it from this angle, and decisions have been made on a rule-of-thumb basis.

It is of more than usual significance that one such study that has been made on a single-track line of only moderately heavy traffic, and in which consideration has been given to all phases of railway operation affected by the weight of rail, shows that, at least for this line, the most economical section is one heavier than any now in common use. In other words, this study indicates that this road is warranted in laying a heavier rail than is now used even on roads of heaviest traffic.

This study has been made with such thoroughness as to give it much weight: Above all other conclusions, it shows that the railways are not yet approaching the limit of economical expenditure for rails. What is true for this unit of the track structure may be shown to be true of other details of roadway construction. Splendid as are the returns from the expenditures which have been made in recent years, it is evident from such investigations that the roads are warranted in continuing to make large capital expenditures.

What Delays Freight Trains?

IT is not always easy to place one's finger on the causes of freight train delays. They are sometimes elusive and, until they are known, it is difficult, if not impossible, to find the remedies.

In discussing the subject recently, an operating officer of considerable experience said:

"If I were placed in charge of the operations of a railroad strange to me, and asked to find the reason for freight train delays, I would investigate:

The practice of having through freight trains stop for 'short' loads.

The location of sidings and of coal and water stations with reference to the operating necessities.

Unnecessary train stops for coal and water.

Inspection of trains by road crews at so-called 'inspection stations.'

Locomotive utilization.

Communication facilities between the conductor and engineer, and also between the crew and the dispatcher.

How the trains are handled at terminals.

The classification facilities and the classification methods employed.

"There are other things, it is true, but, by concentrating on these items, and correcting them by the application of modern operating methods, such as, for example, main-trackers, extended engine runs, greater tank capacity, etc., I am sure that the situation could be remedied."

The supervision of the items mentioned is not always an easy matter, and, on some railways, the correction involves innumerable complications. Nevertheless, as this operating officer indicates, they are worthy of the closest attention.



Canadian Pacific Yard at Ft. William, Ont., Important Factor in Grain Movement

Kansas City-Gulf Wheat Rate Cut Jeopardizes Rate Structure

Reduced tariffs discriminate against parts of the country and eastern and western lines

BY reducing the export wheat rate from Kansas City to Gulf ports from 30.5 cents to 23.5 cents per 100 lb. effective on August 15, the Kansas City Southern created a situation which may become national in scope and which may lead to a readjustment of the entire wheat rate structure. This road first filed tariffs on April 20, effective May 25, reducing the rate from Kansas City to Gulf ports 7 cents per 100 lb., following the efforts made by Governor Reed and Senator Capper of Kansas to induce the western roads to put into effect an emergency reduction in export rates. These tariffs were withdrawn when presidents and traffic executives of the principal eastern carriers convened in Washington on May 2, at the instance of President Hoover, and decided to put into effect a temporary emergency reduction in the rates from Missouri river points, St. Louis, Chicago and Lake Erie ports to the north Atlantic seaboard. Later the Mississippi-Warrier Service, on May 17, asked for authority to establish emergency tariffs reducing the rail-barge rates to correspond with those of the rail lines.

The emergency rates expired on September 30, but in the interim the K. C. S. again filed tariffs re-establishing the proportional rate (the rate used as a factor in obtaining the total combination rate) of 23.5 cents on wheat and products and 22 cents on coarse grain and products from Kansas City to Gulf ports, to become effective August 15. Protests against these tariffs were filed by western and southwestern carriers and other interested parties but the Interstate Commerce commission refused to suspend the K. C. S. tariffs.

On November 29 the commission granted the Mis-

souri-Kansas-Texas and the St. Louis-San Francisco permission to meet the 23.5-cent proportional rate on one day's notice, and on September 5 the commission announced that special permission would be issued under section six, authorizing other applicant carriers to file schedules, effective on one day's notice, establishing the same rates from Kansas City as had been established from that point by the Kansas City Southern.

Reasons for Reduction

The K. C. S. gave several reasons for reducing the rate from 30.5 cents to 23.5 cents. One was that the water rate over the Great Lakes from Chicago was so low that the Gulf ports suffer as a consequence. Another reason was that the barge line rates on the Mississippi river were so low that wheat from territory near St. Louis moved over this route to the Gulf instead of over rail routes via Kansas City. In addition, it contended that the through rate arrangement on certain lines for wheat originating in Kansas, Nebraska and Colorado and moving to the Gulf, prohibited its movement through Kansas City since the K. C. S. did not have joint through rates with those carriers. It also maintained that the reduced rate would benefit the farmer and Kansas City.

The K. C. S. maintains that it is entitled to participate in the movement of wheat which originates in Kansas, Nebraska and Colorado and moves to the Gulf, but that it has been unable to do so because the through rates are not made, in all cases, applicable to its line. This road does not reach the grain producing areas mentioned and no joint rates from those fields are in effect in connection with the K. C. S. at

Kansas City except from points on the Union Pacific, the St. Joseph & Grand Island, and the Chicago, Burlington & Quincy, which lines do not extend to the Gulf. The Chicago, Rock Island & Pacific, the Atchison, Topeka & Santa Fe, and the Missouri Pacific which serve these areas maintain rates on grain to the Gulf ports for export via their own lines. On a considerable portion of this grain, especially from points on the Santa Fe, the Rock Island and the Missouri Pacific, transit arrangements are in effect at Kansas City whereby the grain moves from the producing point to the Gulf under through rates.

Methods of Making Grain Rates

In an effort to attract export grain to its line at Kansas City, the K. C. S. has for a number of years, maintained proportional export rates from that point to Port Arthur, New Orleans and other Gulf ports. In addition it has maintained varying proportional rates from Kansas City to the Gulf ports, which are applicable to grain from points on the Santa Fe, the Rock Island, the Missouri Pacific and other lines. The rates are substantially the differences between the through rates from points on these lines, and the rates from the same points to Kansas City, dependent upon the point of production.

By way of explanation, it may be stated that the through rates from the grain fields to the Gulf had been made for years by combining local rates to the lower Missouri river crossings with proportional rates therefrom to the Gulf. While that adjustment continued, the proportional rates from Kansas City were sufficient to enable the lines south thereof to participate in the movement from points west of the Missouri river in competition with the direct lines. In 1907 complaint was filed by the Farmers, Merchants and Shippers Club of Kansas attacking the reasonableness of the rates from Wichita to the Gulf in relation to the through rates from that city to the Gulf through Kansas City, the rates being the same for either service. The complainants alleged that the grain from Wichita was hauled to Kansas City and later back through Wichita to the Gulf, an additional haul of approximately 425 miles, and as those were reasonable rates, the direct rate from Wichita was unreasonable. The commission, in its decision, prescribed a basis of rates from Wichita, the established rate of 25 cents from Wichita to the Gulf being not higher than 6.75 cents per 100 lb. less than the combination rate from Wichita through Kansas City to the Gulf. The commission further prescribed that rates from points north and west of Wichita should not exceed one half cent for each additional 50 miles over the Wichita distance. This had the effect, substantially of reducing the rates in the greater part of Kansas and portions of lower Nebraska to the Gulf, to less than the combination on Kansas City.

Proportional Rates

To enable the lines south of Kansas City to participate in the traffic as before, varying proportionals or so-called balances were published from Kansas City to the Gulf which represented the difference between the through rate from the grain fields and the rate from such fields to Kansas City. This condition prevailed until July 27, 1928, when the commission in Southern Kansas Grain & Grain Products Association vs. the C. R. I. & P., No. 17159, I. C. Rep. 146, p. 700, found that the varying proportional rates of the Chicago & Alton, the Kansas City Southern, the St. Louis-San

Francisco and the Missouri-Kansas-Texas if, and as applied in respect of grain originating south of the main line of the Santa Fe through Florence, Newton, Hutchison, Kinsley, Dodge City and Garden City, or originating on or north of this line but moving to Kansas City over routes through the territory south of this line, resulted in undue prejudice to certain cities and shippers therein located and in undue preference to Kansas City and shippers therein located.

The K. C. S. contended that the varying proportional rates that were in effect from Kansas City to Gulf ports were, in many instances, 1 to 3 cents higher than the transit balances (the through rate to the Gulf minus the local rate to Kansas City), of the various through lines above mentioned. The old 30.5 cent proportional rate from Kansas City to the Gulf in connection with the K. C. S. was said to be merely a paper rate, and wheat from Kansas City to the Gulf for export would not move on rates in excess of approximately 27 cents, which, in most instances, was the maximum transit balance from Kansas City that would move export wheat over competing lines to the Gulf. This condition was due to the switching of expense bills. In order to secure any of this traffic, the K. C. S. contended that it must maintain proportional rates substantially on a parity with the transit balances of those competing lines that have through rates from the grain fields to the Gulf with transit at Kansas City.

Competition with Lake and River Routes

The K. C. S.'s desire to meet the competition of the rail-and-lake routes from Kansas City through the port of Montreal, Que., is explained by the prevailing rates. The rail rate from Kansas City to Chicago, Milwaukee Wis., and Manitowoc is 17.5 cents while the lake rate from Chicago to Montreal is not higher than 15 cents per 100 lb. The rate from Kansas City to Montreal, including insurance, does not exceed 32.5 cents, while the normal proportional rate from the same market to the Gulf is 30.5 cents and the ocean rate from Montreal to the United Kingdom ports is 4 or 5 cents less than the corresponding rate from the Gulf ports.

The reason cited by the K. C. S. for its inability to secure any substantial quantity of export wheat traffic to the Gulf ports, is the keen competition of the Mississippi-Warrior Service, which operates on the Mississippi river from St. Louis and Cairo, Ill., to New Orleans, and which participates in relatively low joint rail-and-water rates to the same port from Omaha and Kansas City. Prior to the adoption of the emergency rate last May the barge rate from St. Louis to New Orleans was 11.5 cents and the rail rate was 18 cents. At the same time the rail rate from Cairo to New Orleans was 15 cents and the barge rate was 10 cents, while the joint rail-and-barge rate from Omaha to New Orleans was 25 cents and the rail rate 31½ cents. From Kansas City to New Orleans the open proportional rate over the K. C. S. to Gulf ports was 30.5 cents, while the rail-and-barge rate between these points was 25 cents. Further the Illinois Central maintained a flat rate of 26.5 cents on wheat from stations in Illinois to New Orleans.

Because of the competition of the rail-and-lake rates to Montreal and the barge line rates on the Mississippi river, the K. C. S. alleged its inability to secure any substantial amount of grain and therefore, reduced the proportional rate from Kansas City to the Gulf from 30.5 cents to 23.5 cents or 7 cents per 100 lb. Fol-

lowing this action the direct lines from the grain fields to the Gulf reduced their through rates 7 cents per 100 lb., thus maintaining, relatively, the situation as before. This reduction in the through rate made necessary a reduction in the varying proportional balances from Kansas City to the Gulf, and this was done by deducting from the through rate as reduced, the rates into Kansas City, the remainder representing the balance which was made by the K. C. S. in order to continue on a parity with the through lines. The barge line has likewise reduced the rate from the Missouri river crossings, Omaha to Kansas City inclusive, to 21.5 cents, giving 8 cents south of St. Louis, effective November 30.

Objections to Reducing Rates

The western railroads as a whole, other than the K. C. S., objected to this railroad's action in fixing the through rates from points on their lines in the grain fields to the Gulf believing that it should confine itself to equalizing the through rates as they existed, since in the final outcome the Kansas City Southern's effort would not give that line any advantage. Further, they point out that its reduced rates have no more than equalized the through rates, which was formerly the case.

The southwest carriers objected to the reduction on the ground that the old rates were adequate to insure a movement to Gulf ports comparable with the movement to other ports. They did not believe that the farmer or the grain centers would benefit by the reduction.

The carriers which serve the Official Classification territory and which participate in grain transportation to Atlantic ports were opposed to a change on the ground that the present relationship between the Missouri river-Atlantic coast rates and the Missouri river-Gulf coast rates favors the latter. The total all-rail charge from Kansas City to Baltimore was 38.5 cents, while the rate from Kansas City to the Gulf was 30.5 cents or 8 cents less than to Baltimore. By the 7 cent reduction, the rate from Kansas City to the Gulf was made 23.5 cents or 15 cents under Baltimore whereas the export rate from Baltimore to United Kingdom ports is about 2 cents less than from Gulf ports. The Chicago and Milwaukee interests have felt that the export rates on grain should be such as to bring rates to the Atlantic ports on a basis no higher than the prewar differentials over the rates from Kansas City to the Gulf ports. These differentials to Baltimore over New Orleans were 4 cents from Omaha and 5 cents from Kansas City. The Federal barge line felt that such a change would impair its wheat traffic by creating rail rates on grain which would be so low that it would be unable to secure any export wheat traffic.

What are the Advantages and Disadvantages?

The other southwest carriers reduced rates correspondingly because of the advantage which the K. C. S. would otherwise derive from the tariffs effective on August 25. This may best be indicated by applying the rates to a specific point such as Concordia, Kan., which is served by the Atchison, Topeka & Santa Fe, the Chicago Burlington & Quincy, the Union Pacific and the Missouri Pacific. In the application of the reduced proportional rates on wheat, if the shipment moves from Concordia to Kansas City and then over the K. C. S., the through rate from the point of origin is 17.5 cents to Kansas City plus 23.5 cents

to the Gulf or a total of 41 cents. The old through rate over the Santa Fe, the Rock Island and the Missouri Pacific was 45 cents, which would have given the K. C. S. an advantage of 4 cents. With the new tariffs of the other southwestern lines, however, the through rate is 40 cents.

The rail lines from St. Louis to New Orleans made a reduction of 7 cents in the rate from St. Louis to New Orleans, thereby making the rate 11 cents. This makes the all-rail rate from Omaha to the Gulf 13.5 cents to St. Louis and 11 cents beyond or a through rate of 24.5 cents, while the barge line rate from Omaha has been reduced, effective November 30 to 21.5 cents.

The parties that are forced to bear the largest differential following the K. C. S. cut and that of other southwest carriers, are the grain interests at Chicago and the eastern carriers transporting grain to Atlantic ports. They object, since the rail rate from Kansas City to the Atlantic ports, Baltimore via Chicago is 38.5 cents (New York 40 cents), or 15 cents more than the 23.5 cents proportional from Kansas City to the Gulf. The rate from Omaha to Baltimore via Chicago is 38.5 cents or 14 cents more than the through rate to the Gulf.

What Will Be the Outcome?

The outcome of this situation, it is thought, may be a disruption of the entire grain rate structure. It is pointed out that other southwestern carriers and the large railways, in an effort to retain their traffic, have reduced rates to correspond with the reductions made by the K. C. S., and that this action has worked against the western carriers operating from Nebraska and Illinois to Chicago and the eastern lines operating to the Atlantic ports by establishing differentials of 15 and 14 cents (Kansas City and Omaha respectively), in contrast to the 8 and 7 cents differentials which they have always maintained were too high. Some Kansas City interests believe that the 7 cent reductions made to meet the K. C. S. cut was unnecessary, and that the latter's decrease could have been met by a 2.5 cent reduction from some points and no reduction from others.

The southwestern carriers, other than the K. C. S., and the western and eastern carriers, have not yet decided upon a course of action, but are endeavoring to agree upon a plan which will be favorable to the several interests concerned.

* * *



The Twentieth Century Limited at Elkhart, Ind.

Normal and Reverse Direction Signals

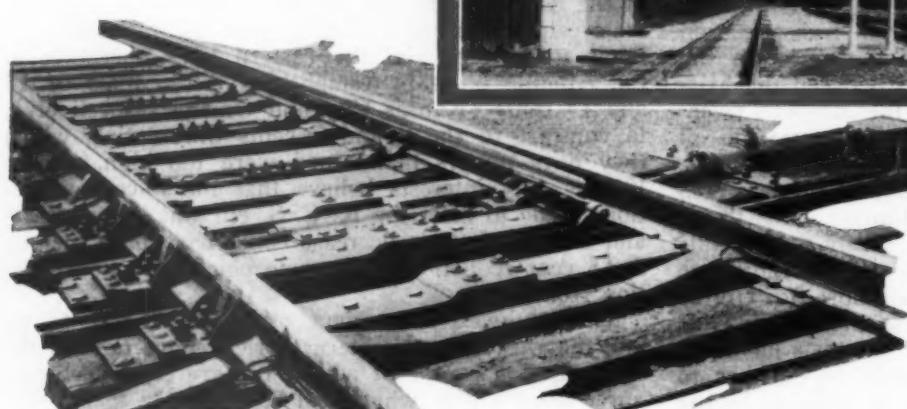
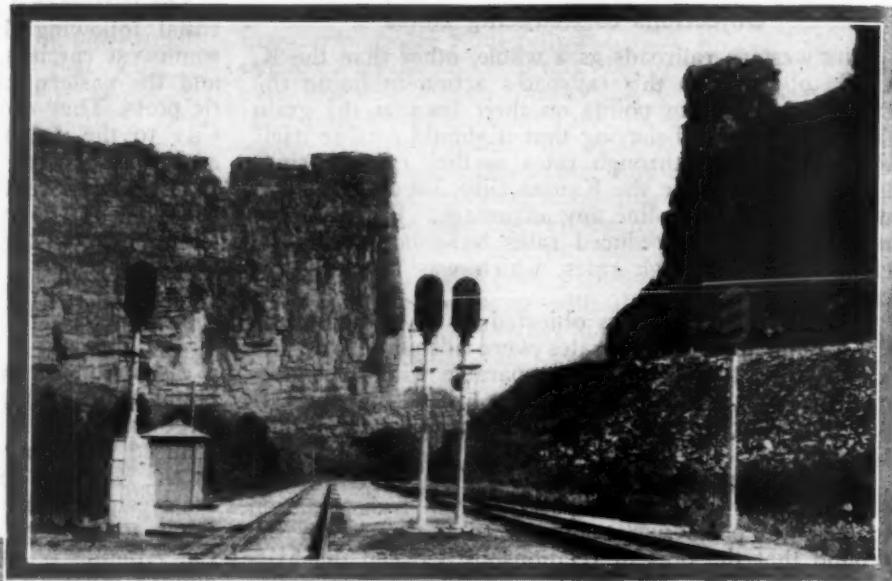
Solve Operating Problem

For D. & R. G. W.

on

Mountain Grade

Track capacity increased on 25-mile section of double track up the east slope of Wasatch Range



Above—Looking West Through the Castle Gate at East End of Zone 3

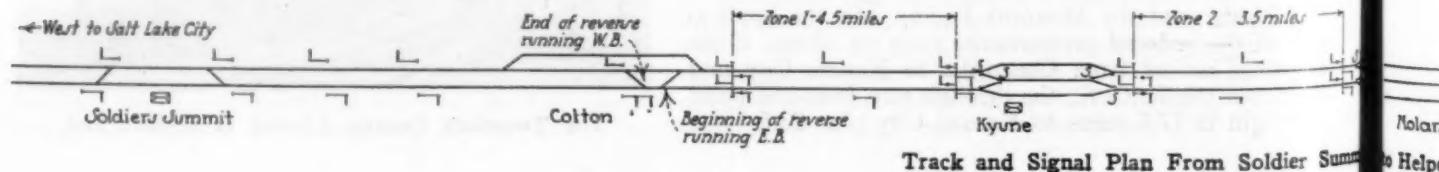
Left—Heavy Tie Plates and Adjustable Rail Braces Are Provided Where Spring Switches Are Used

THE installation of automatic block signals, with the control arranged for either-direction operation on either track, has improved the safety of train operation and increased the track capacity on the 25 miles of double track on the Denver & Rio Grande Western from Helper, Utah, westward to Soldier Summit. In this territory the line ascends the east slope of the Wasatch Mountain range with a grade of 2.4 per cent from Helper to Kyune, about 13 miles, and then 1 per cent to Soldier Summit. This line was built along the Price river, with numerous curves and two short tunnels as it follows the cliffs through the gorge. At Utah Railway Junction, 2.3 miles west of Helper, a single-track line of the Utah Coal Route connects with

the D. & R. G. W., and from this point to Provo, Utah, 72.4 miles west, the Utah Coal Route operates over the D. & R. G. W. tracks.

Center passing tracks, each long enough for 100-car trains, are provided at Nolan and Kyune. Oil-buffer type spring switches are provided at the two switches at each end of every passing track, and the switches are set normally so that trains can pull out of these tracks without stopping to operate the switches.

The heavier passenger locomotives handle 10 or 11-car trains up this grade without a helper, but heavier trains require assistance. Three regular passenger trains are handled each way daily. The coal trains of the Utah Coal Route, as well as those operated by the

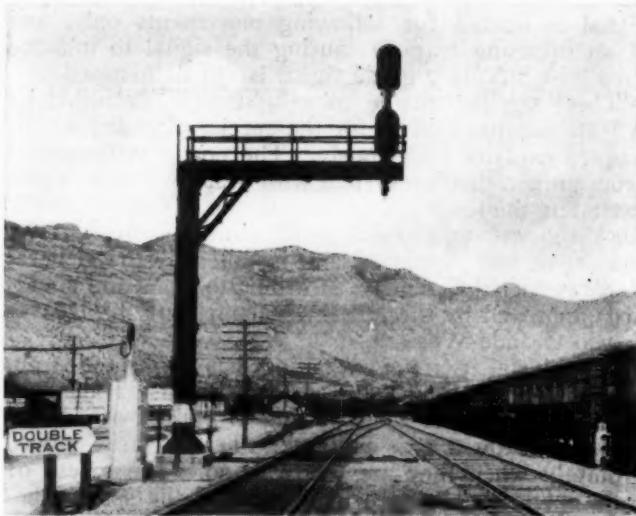


Track and Signal Plan From Soldier Summit to Helper

D. & R. G. W. comprise about 65 cars, or 4,500 tons, using two helpers up the hill to Kyune, while fast merchandise trains with lighter tonnage, require only one helper.

In the winter, an average of 15 freight trains are operated each way daily, with an average of 19 extra movements of light engines down the hill. Therefore, the total traffic in this territory averages 15 westbound and 34 eastbound movements daily. The passenger trains are scheduled from Helper to Soldier Summit in about 1 hr. 13 min. while freight trains require from 1 hr. 30 min. to 2 hr. or more to go up this hill as far as Kyune and about 30 or 40 min. from there to Soldier Summit.

The serious operating problem is to keep all of the trains moving up hill, and at the same time maintain an uninterrupted movement of eastbound trains and light helper engines down the hill. The solution of this problem lay in the operation of trains in either direction on either track, so that, with the heavier trains operating in the normal direction on the right-hand



A Spring Switch Is Used at the End of Double Track Just East of Helper

from Colton to the west end of Kyune, Zone 2 from the east end of Kyune to the west end of Nolan and Zone 3 from the east end of Nolan to the west yard limits which extend eastward six miles into Helper. In this yard limit territory, there are numerous connecting tracks leading to mines and industries.

By means of a set of non-interlocked levers, the operator at Kyune can establish the control of the automatic signaling for the protection of train movements in either direction on either track in any one of the three zones. One lever is provided for each track in each of the three zones, or six levers in all.

In brief, the directional control is accomplished by a set of polarized relays, one at each signal, connected to a two-wire circuit that is connected to contacts operated by the lever, in such a manner that with the lever in one position, positive current energizes the polar relays in one direction to close certain contacts, and, when the lever is thrown to the other position, negative current energizes these relays in the other direction to close a second set of contacts. These levers consist of enclosed-type, double-pole, snap-switches. No locking or interlocking is connected to the levers, the operator being at liberty to move any one of them at any time that he chooses. However, track circuit and automatic signal protection is provided, to prevent any train accidents. Annunciators and full block indicators, located over the operator's desk, indicate the approach and position of each train. Time-element relays connected in the circuits provide a period of 20 sec. between the time that the lever is operated and the time when the signals start to assume the reverse directional indication. This delay feature interposes sufficient time so that simultaneous entry cannot be made to the zones from both directions.

The automatic signals for movements up the grade are equipped with an auxiliary signal light on the mast which, when lighted in conjunction with the red light of the automatic signal, gives the engineman authority to proceed with caution past the signal, without stopping, at a speed not to exceed 8 m.p.h. This grade



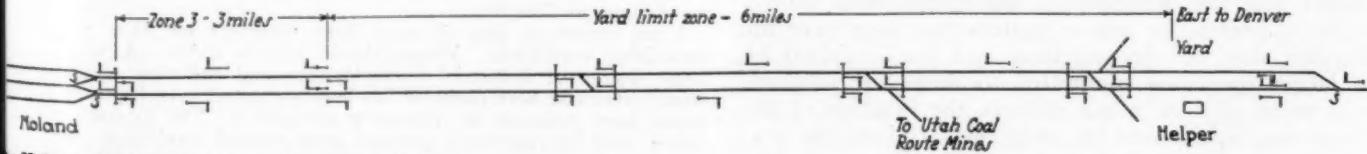
The Control Levers Are Located in the Office at Kyune

track, the lighter trains and light engines could be run around on the sections of the other track that were not otherwise in use at that time.

Although such movements can be made by time table and train orders without automatic signal protection, so many delays were necessarily included in this method of operation, that advantage could not be taken of numerous opportunities to make the movements, and in addition, there is an increased liability of accident due to confusion in the handling of orders to direct such movements in a section of railroad otherwise operated as double track. It was, therefore, decided that the movements could be expedited and the safety of operation increased by the installation of automatic signals, so arranged as to afford protection for train movements in either direction on either track.

Zones Used for Control

To increase the flexibility of operation to permit reverse movements in each block, the control of the signaling is arranged in three zones, Zone 1 extending



Helper—Spring Switches Are Marked S

signal is lighted for following movements only, and if an opposing train is causing the signal to indicate "red" the auxiliary grade signal is not illuminated.

These signals are the color-light type controlled by A.P.B. circuits, except, for the special directional control, as explained previously. The power is furnished from an a-c. floating system with a 550-volt power line extending the length of the installation to furnish power for the signals and to charge the storage batteries. The equipment was furnished and installed by the General Railway Signal Company, according to plans and standards approved by the signal department of the Denver & Rio Grande Western.

This installation of signaling has expedited train movements and eliminated delays, because trains are kept moving rather than waiting at Helper or Soldier Summit or on a passing track. Trains are moved promptly when they are ready to go. The safety of train operation has been increased and the spacing between trains has been reduced with safety to the length of an automatic block as compared with the 10-min. train spacing rule used before. Therefore, the track capacity has been decidedly increased.

President Recommends Consolidation Legislation

WASHINGTON, D. C.

"**A**s a whole, the railroads never were in such good physical and financial condition, and the country has never been so well served by them," said President Hoover in his message at the beginning of the second session of the Seventy-First Congress on December 3. He added that the greatest volume of freight traffic ever tendered is being carried at a speed never before attained and with satisfaction to the shippers, that "efficiencies and new methods have resulted in reduction in the cost of providing freight transportation," and that "freight rates show a continuous descending line from the level enforced by the World War."

"We have, however," he said, "not yet assured for the future that adequate system of transportation through consolidations which was the objective of the Congress in the transportation act. The chief purpose of consolidation is to secure well-balanced systems with more uniform and satisfactory rate structure, a more stable financial structure, more equitable distribution of traffic, greater efficiency, and single-line instead of multiple-line hauls. In this way the country will have the assurance of better service and ultimately at lower and more even rates than would otherwise be attained. Legislation to simplify and expedite consolidation methods and better to protect public interest should be enacted.

"Consideration should also be given to relief of the members of the Commission from the necessity of detailed attention to comparatively inconsequential matters which, under the existing law, must receive their direct and personal consideration. It is in the public interest that the members of the Commission should not be so pressed by minor matters that they have inadequate time for investigation and consideration of the larger questions committed to them for solution. As to many of these minor matters, the function of the Commission might well be made revisory, and the primary responsibility delegated to subordinate officials

after the practice long in vogue in the executive departments."

In discussing the subject of waterways the President said that in view of the completion of the canalization of the Ohio river the development of the other segments of the Mississippi system should be expedited and with this in view he was recommending an increase in the appropriations for rivers and harbors from \$50,000,000 to \$55,000,000 per annum. This, he said, together with about \$4,000,000 per annum released by completion of the Ohio, should make available after providing for other river and harbor works a sum of from \$25,000,000 to \$30,000,000 per annum for the Mississippi system and thus bring it to early completion. He also said that "expansion of our intra-coastal waterways to effective barge depths is well warranted" and that "we are awaiting the action of Canada upon the St. Lawrence waterway project."

Economic Situation

In dealing with the general economic situation the President outlined the purpose of his recent conferences with business leaders, saying:

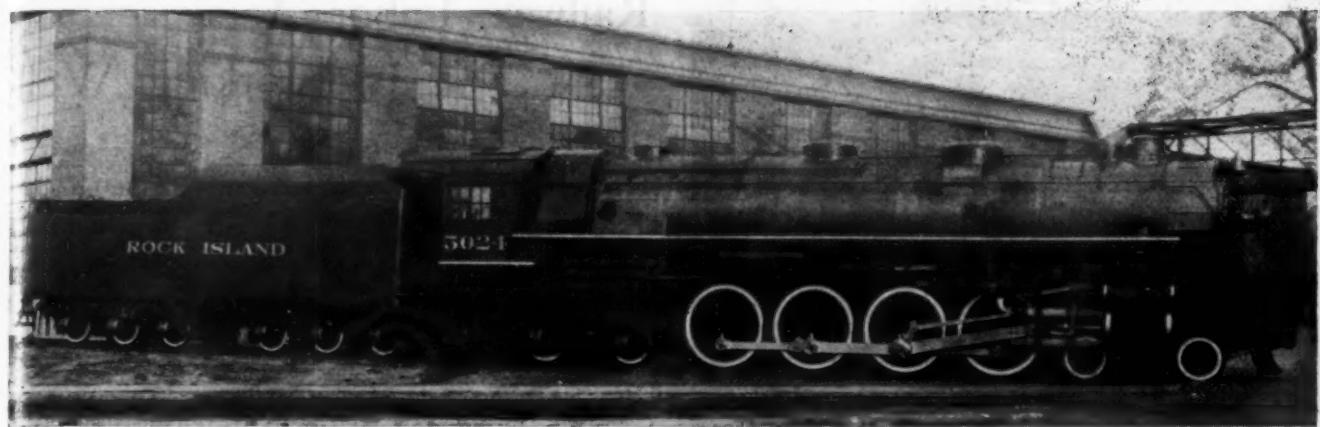
The country has enjoyed a large degree of prosperity and sound progress during the past year with a steady improvement in methods of production and distribution and consequent advancement in standards of living. Progress has, of course, been unequal among industries, and some, such as coal, lumber, leather, and textiles, still lag behind. The long upward trend of fundamental progress, however, gave rise to over-optimism as to profits which translated itself into a wave of uncontrolled speculation in securities, resulting in the diversion of capital from business to the stock market and the inevitable crash. The natural consequences have been a reduction in the consumption of luxuries and semi-necessities by those who have met with losses, and a number of persons thrown temporarily out of employment. Prices of agricultural products dealt in upon the great markets have been affected in sympathy with the stock crash.

Fortunately, the Federal reserve system had taken measures to strengthen the position against the day when speculation would break, which together with the strong position of the banks has carried the whole credit system through the crisis without impairment. The capital which has been hitherto absorbed in stock-market loans for speculative purposes is now returning to the normal channels of business. There has been no inflation in the prices of commodities; there has been no undue accumulation of goods, and foreign trade has expanded to a magnitude which exerts a steady influence upon activity in industry and employment.

The sudden threat of unemployment and especially the recollection of the economic consequences of previous crashes under a much less secured financial system created unwarranted pessimism and fear. It was recalled that past storms of similar character had resulted in retrenchment of construction, reduction of wages, and laying off of workers. The natural result was the tendency of business agencies throughout the country to pause in their plans and proposals for continuation and extension of their businesses, and this hesitation unchecked could in itself intensify into a depression with widespread unemployment and suffering.

I have, therefore, instituted systematic, voluntary measures of co-operation with the business institutions and with state and municipal authorities to make certain that fundamental businesses of the country shall continue as usual, that wages and therefore consuming power shall not be reduced, and that a special effort shall be made to expand construction work in order to assist in equalizing other deficits in employment. Due to the enlarged sense of cooperation and responsibility which has grown in the business world during the past few years the response has been remarkable and satisfactory. We have canvassed the federal government and instituted measures of prudent expansion in such work that should be helpful, and upon which the different departments will make some early recommendations to Congress.

I am convinced that through these measures we have re-established confidence. Wages should remain stable. A very large degree of industrial unemployment and suffering which would otherwise have occurred has been prevented. Agricultural prices have reflected the returning confidence. The measures taken must be vigorously pursued until normal conditions are restored.



One of the 4-8-4 Type Locomotives Built for the Rock Island by the American Locomotive Company

Rock Island Buys 4-8-4 Type Locomotives

For use in freight and passenger service—Design permits application of 69-in. or 74-in. drivers

TWENTY-FOUR 4-8-4 type locomotives were recently delivered by the American Locomotive Company to the Chicago, Rock Island & Pacific for service on the El Paso-Kansas and the Missouri divisions, over which a heavy traffic is carried and movement of freight trains at speeds is necessary. This order of locomotives is a repeat order of the single locomotive No. 5000 which was delivered to the Rock Island last February. These locomotives develop a maximum tractive force of 66,000 lb. which, with the tractive force of 13,100 lb. developed by the booster

Table of Dimensions, Weights and Proportions of the Chicago, Rock Island & Pacific 4-8-4 Type Locomotives

Railroad	C. R. I. & P.
Builder	American Locomotive Company
Type of locomotive	4-8-4
Service	Freight
Cylinders, diameter and stroke	26 in. by 32 in.
Valve gear, type	Baker
Valves, piston type, size	12 in.
Maximum travel	8 1/8 in.
Outside lap	1 1/4 in.
Exhaust clearance	Zero
Lead in full gear	34 in.
Weights in working order:	
On drivers	265,500 lb.
On front trucks	68,000 lb.
On trailing truck, rear wheels	57,500 lb.
On trailing truck, front wheels	43,000 lb.
Total engine	434,000 lb.
Tender	299,200 lb.
Total engine and tender	733,200 lb.
Wheel bases:	
Driving	19 ft. 3 in.
Total engine	45 ft. 7 in.
Total engine and tender	88 ft.
Wheels, diameter outside tires:	
Driving	69 in.
Front truck	33 in.
Trailing truck, front	36 in.
Trailing truck, rear	43 in.
Journals, diameter and length:	
Driving, main	12 1/2 in. by 13 in.
Driving, others	11 in. by 13 in.
Front truck	7 1/2 in. by 13 in.
Trailing truck, front	7 in. by 14 in.

Trailing truck, rear	9 in. by 14 in.
Boiler:	
Type	Straight top
Steam pressure	250 lb.
Fuel, kind	Soft coal
Diameter, front ring, inside	84 1/4 in.
Firebox, length and width	132 1/4 in. by 96 1/4 in.
Combustion chamber, length	54 in.
Tubes, number and diameter	77—2 1/4 in.
Flues, number and diameter	202—3 1/2 in.
Length over tube sheets	21 ft. 6 in.
Grate area	88.3 sq. ft.
Heating surfaces:	
Firebox and combustion chamber	364 sq. ft.
Syphons	151 sq. ft.
Tubes and flues	4,928 sq. ft.
Total evaporative	5,443 sq. ft.
Superheating	2,243 sq. ft.
Combined evaporative and superheat	7,686 sq. ft.
Tender:	
Water capacity	15,000 gal.
Fuel capacity	20 tons
Wheels, diameter outside tires	33 in.
Journals, diameter and length	6 1/2 by 12 in.
Maximum rated tractive force	66,000 lb.
Rated tractive force of booster	13,100 lb.
Combined tractive force at starting	79,100 lb.
Weight proportions:	
Weight on drivers + total weight engine, per cent	61.3
Weight on drivers + tractive force	3.98
Total weight engine + comb. heat. surface	56.5
Boiler proportions:	
Tractive force + comb. heating surface	8.68
Tractive force \times diam. drivers + comb. heating surface	598
Firebox heating surface + grate area	5.84
Firebox heat. surface, per cent of evap. heating surface	9.47
Combined heating surface + grate area	86.9

gives a total tractive force at starting of 79,100 lb. They operate at a boiler pressure of 250 lb., and have 26-in. by 32-in. cylinders. The diameter of the drivers is 69-in.

Interchangeable Driving Wheels

When developing the design, the railroad company desired to produce a locomotive which would be generally suitable for both freight and passenger service, with the fewest number of changes in the design. The driving-wheel base and the related parts was designed so that 74-in. driving wheels could be applied when



Interior View of the Cab

the locomotives were to be used in passenger service. This feature permitted the application of a considerable number of the railroad's standard parts that could be used interchangeably.

Features in the Design

The air compressors are located in front of the cylinders, immediately back of the bumper. The air-compressor brackets, front frames, cylinder saddle and bumper are cast integral. The main frame is of the usual rectangular bar section, but the design differs somewhat from the conventional at the front end, due to the fact that the cylinder rail, while continuous as in other designs, is set in a depression of the frame front-end casting. This arrangement permits bolting and keying the cylinder castings directly to the combination casting. The entire design makes a substantial and rigid construction.

The guide yoke, lateral-motion and reverse-shaft crossties which are usually applied separately, are also cast integral. This combination casting is bolted to the front bumper bracket, as well as to the main frames and brake shaft crossties. This arrangement produces a rugged construction. Another feature in the design is the supporting of the firebox on sliding shoes at the front and rear. The cab, an interior view of which is shown in one of the illustrations, is of ample dimensions, and special attention was given to the location of the valves, gages, etc., to provide maximum accessibility and vision. It will be noted from the illustration, of the locomotive that practically all piping is placed underneath the jacket.

Special Equipment

As the Missouri division has a considerable number of sharp curves, these locomotives were equipped with Alco spring-controlled lateral motion devices which were applied to the front drivers, and also inside-bearing cast-steel geared roller-resistance engine trucks. Other specialties applied to these locomotives are Alco power reverse gear, Baker valve gear, BK type Standard stoker, with the engine located on the tender, Coffin feedwater heater, Chambers throttle and Type E superheater. Thermic siphons are also applied, two in the firebox and two in the combustion chamber. The tender is carried on six-wheel trucks with cast-steel frames, and has a capacity for 15,000 gal. of water and 20 tons of fuel.

Railway Labor Act Is Working Well

WASHINGTON, D. C.

ALARGE measure of fulfillment of the prophecies made for the railway labor act while it was under consideration is seen by the United States Board of Mediation as the result of its experience under the act, according to the annual report of the board submitted to Congress by Samuel E. Winslow, chairman. Extracts from the report are as given below:

It is the opinion of the Board of Mediation that the industrial relations between the employees and carriers comprehended in the railway labor act are marked by manifestations of good feeling, respect, and interest on the part of all those connected therewith. The common aim appears to be a desire to work out problems on the basis of promptness and fairness. There seems to be no outstanding evidence of the injection of industrial or commercial politics in the transaction of business between employees and employers so far as our board through its participation is able to observe.

Many of the questions arising are, of course, difficult of settlement, but this is not unlike situations noticeable in commercial transactions generally. Whereas employees and carriers may have appeared in the past to consider industrial relations on railroads as a thing apart from relations in other industrial lines and so impossible of comparability, there are abundant evidences to-day of the recognition of underlying principles, human and economic, which should and do bear on such relationship in railroads as well as elsewhere.

Every commercial activity has its own peculiar and specific characteristics and problems. Such have to be adjusted ultimately with a recognition of the particular features of each and every commercial line of endeavor, whether the industry affected is textile, mechanical, mercantile, or connected with transportation. In each succeeding year of the three years during which the railway labor act has been in force the Board of Mediation has noticed a constant and cumulative broadening of viewpoint as reflected by those representing the interests of employees and employers who come under the administration of the law.

We feel that there is substantial warrant for an acknowledgment of a fulfillment in large measure up to this time of the prophecies and assurances made by the proponents of the railway labor act in their utterances to the public and to the Congress of the United States as affecting the consideration and passage of the Watson-Parker bill, i. e., the railway labor act. Never in the history of our country has railway transportation been more harmoniously performed and conducted than now and never before so efficiently in the interest of everybody.

Of the 428 cases involving rates or pay, rules, and working conditions submitted to our board, 385 had been disposed of by June 30, 1929; 129 of these were acted upon during the fiscal year covered by this report. Of these 129 cases, 46 were settled through mediation, 10 were submitted to arbitration, 37 were withdrawn through mediation, 6 were withdrawn without mediation consideration, and 30 were closed by action of the board. At the end of the year 9 out of the 10 cases submitted to arbitration had been concluded. At the end of the year 43 of the total of 428 cases received remained unsettled. Of this number, 41 had been assigned for mediation and 2 had not been so assigned.

During the fiscal year ended June 30, 1929, the board received 37 applications for its services in the adjustment of grievances which had not been decided by the appropriate adjustment board by which they had been considered. This made a total of 69 such cases received by the board since its creation.

Of the 69 grievance cases herein referred to as having been submitted to our board, 45 had been disposed of during the year covered by this report. Of the remaining cases before the board, 18 had been assigned for mediation and 6 remained unassigned.

In our report of 1928 the following appeared:

The consideration of grievance matters by the Board of Mediation, as provided by the railway labor act, contemplates the creation of appropriate adjustment boards. Such adjustment boards have not been generally created. Consequently, the Board of Mediation has been hampered in its efforts to render services in such cases.

During the past year this condition has been improved by the voluntary action of the parties in interest.

Pennsylvania Continues Progress

No let-up in increase in operating efficiency—Extensive improvements look to future—Stock sold to employees

In March of this year the Pennsylvania issued a statement showing the improvement in its freight service operating statistics in 1928 as compared with preceding years. The improvement in every average was striking. The current year, however, has witnessed even more outstanding increases over 1928. These are set forth in Table I, which shows an extraordinarily remarkable record for improvement in efficiency brought about in one year's time—all the more so because it marks, not the beginning of a period of advance, but an unrelenting continuation of a movement which has extended over a period of years.

Comparisons in this table are of the first eight months of this year with the same period last year. It will be noted that gross ton-miles increased 10.6 per cent and net ton-miles 12.9 per cent (reflecting a 4.7 per cent increase in the average car loading), while freight train-miles increased only 3.1 per cent and freight train-hours only 0.2 per cent. Net ton-miles per car-day rose 13.7 per cent; gross ton-miles per train-hour, 10.4 per cent; and net ton-miles per train-hour, 12.7 per cent. Coal consumption per 1,000 gross ton-miles declined 3.9 per cent; unserviceable freight locomotives, 13.8 per cent; and unserviceable freight cars, 14.3 per cent. Average daily miles per freight locomotive rose 14.1 per cent.

This marked betterment in operating efficiency naturally reflected itself in the earnings of the company, the comparison for the first nine months of 1929 with the same period last year being shown in Table II. In-

Table I—Comparison of Selected Freight Operating Statistics—8 Months

	1929	1928	Per cent of change Inc. Dec.
Mileage operated	10,738	10,801	0.6
Gross ton-miles (thousands)	76,393,466	69,075,164	10.6
Net ton-miles (thousands)	35,530,493	31,479,176	12.9
Freight train-miles (thousands)	32,340	31,366	3.1
Freight locomotive-miles (thousands)	40,760	38,614	5.6
Freight car-miles (thousands)	1,808,033	1,672,984	8.1
Freight train-hours	2,701,556	2,696,800	0.2
Car-miles per day	24.9	22.9	8.7
Net tons per loaded car	30.9	29.5	4.7
Per cent loaded to total car-miles	63.6	63.7	0.2
Net ton-miles per car day	490	431	13.7
Freight cars per train	56.9	54.3	4.8
Gross tons per train	2,362	2,202	7.3
Net tons per train	1,099	1,004	9.5
Train speed, miles per train-hour	12.0	11.6	3.4
Gross ton-miles per train-hour	28,278	25,614	10.4
Net ton-miles per train-hour	13,152	11,673	12.7
Lb. coal per 1,000 gross ton-miles	123	128	3.9
Loco-miles per loco-day	56.8	49.8	14.1
Per cent freight locos. unserviceable	10.0	11.6	13.8
Per cent freight cars unserviceable	5.4	6.3	14.3

creased business resulted in a rise of 7.5 per cent in gross revenues, but not a proportionate rise in expenses, so that net railway operating income increased 22.7 per cent. The maintenance of way ratio declined 1.6 per cent, the maintenance of equipment ratio, 5.4 per cent, the transportation ratio, 3.7 per cent; and the operating ratio, 4.1 per cent to 71.2.

The Pennsylvania has availed itself extensively of both means by which operating efficiency may be increased, i. e., judicious capital expenditures and by the development and adoption of improved operating methods. In the five-year period, 1924-28, the average net annual increase in property investment was over 39

million dollars. In 1928 it was \$45,936,362, of which \$26,513,968 was expended for new equipment. Noteworthy among its equipment orders in 1928 was a total of 1150 passenger train cars, enabling the company to dispense entirely with wooden cars in its passenger service. During the current year equipment orders have included 100 Mikado type freight locomotives, 1000 box cars and 5000 box car bodies. The largest rail order

Table II—Revenues and Expenses—Nine Months

	1929	1928	+ Increase or — Decrease %
Freight Revenue	\$364,288,567	\$333,623,286	+ 9.2
Passenger Revenue	98,095,636	99,706,830	— 1.6
Total Oper. Revenue	514,071,694	477,993,779	+ 7.5
Maint. of Way Expenses	64,799,180	61,343,206	+ 5.6
Maint. of Equipment Expenses	98,531,263	97,138,651	+ 1.4
Transportation Expenses	174,130,937	168,288,819	+ 3.5
Total Oper. Expenses	366,050,711	354,441,723	+ 3.3
Net Railway Oper. Income	103,733,713	84,517,447	+ 22.7
Maint. of Way Ratio, %	12.6	12.8	— 1.6
Maint. of Equip. Ratio, %	19.2	20.3	— 5.4
Trans. Ratio, %	33.9	35.2	— 3.7
Operating Ratio, %	71.2	74.2	— 4.1

on record—310,000 tons—was recently placed to meet the company's 1930 requirements.

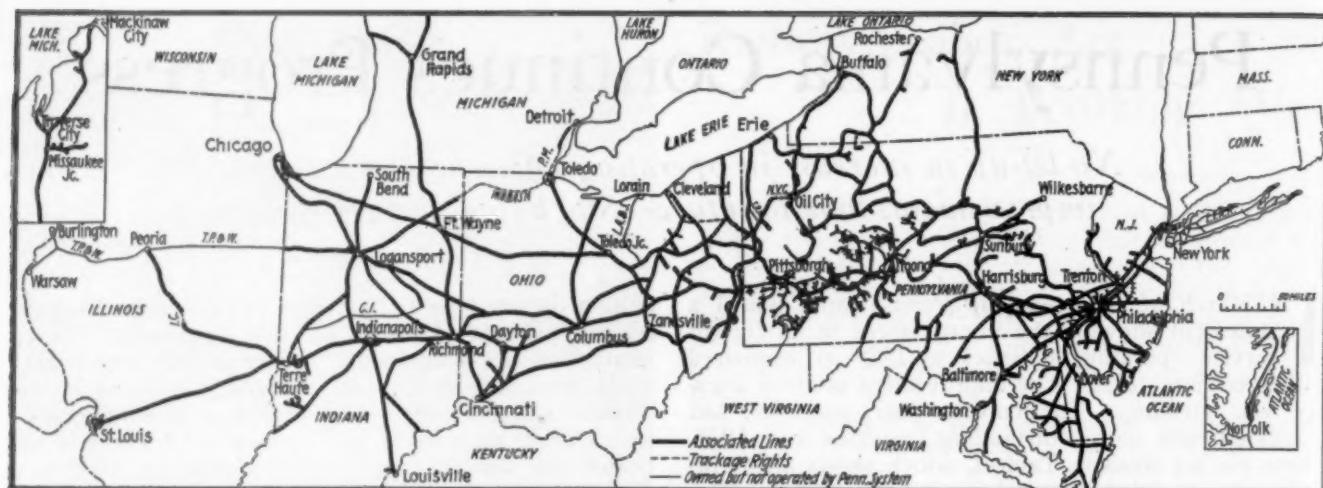
Outstanding among capital improvement projects being carried on by the Pennsylvania at the present time is the electrification of the main line between New York and Washington, involving terminal improvements at Baltimore, Md., and Newark, N. J., and a new station at Trenton, N. J. Extensive terminal improvements at Pittsburgh, Pa., are likewise under way. A new passenger terminal is being developed at West Philadelphia, Pa., with an underground suburban line to replace the present elevated line to Broad Street Station. A rail-ship freight terminal, which will involve a total expenditure of \$50,000,000, is under construction at Jersey City, N. J. There are, in addition, a multitude of smaller projects—bridge renewal, engine terminal facilities, track construction and other improvements—designed to give better service to patrons or bring about a reduction in operating expenses.

Close Check on Costs

Of modern methods used in bringing about operating economies, one of the outstanding is the development of a detailed budget system and the close check kept on costs. In a recent address Vice-President F. J. Fell, Jr., outlined the effect of this cost analysis in part as follows:

"In the maintenance of way department we have the latest labor-saving machinery that is available; much of the laying of rails is done by large gangs especially proficient in the work. We use ballast cleaners and pneumatic tampers, and recently we established what is known as 'paint trains,' which paint buildings and bridges in a wholesale manner. Obviously these particular things had to prove their worth before they were adopted—processes that involved special studies and investigations.

"In the equipment department the concentration of shop facilities has brought about large savings in connection with repairs to equipment. For example, the number of shops giving heavy repairs to passenger cars



The Pennsylvania System

decreased 78½ per cent from 1921 to 1929. In the same period, the number of shops giving heavy repairs to locomotives decreased 83.7 per cent. Our engine houses at which light repairs are given to engines decreased 28.1 per cent. These reductions were made as a result of cost studies made specially and continuously. Without telling in detail how these studies were made, suffice it to say that the average cost of repairs to locomotives fell from 41.9 cents per mile in 1921 to 26.7 cents per mile in 1928, and that the first eight months of 1929 showed a further reduction.

"Continuous statistics are kept on the costs per car for handling cars in yards, and large decreases in expenses have been brought about by a close study of these costs. It is our practice to have experienced men survey the operations in our stations and to indicate, on the basis of their observations, what is absolutely essential to run the station and conduct the business properly. These studies have also resulted in large reductions in expenses.

"One of the important items in the railroad business is the amount of overtime paid to our engine and train crews. These overtime payments are caused by delays on the road, at the starting point and at destination. Detailed studies are made daily of these operations, showing the extent of detentions of this character. As a result, the ratio of total overtime payments to the total compensation to train crews was reduced in 1928 about 41 per cent under that of 1923.

"Continuous studies of costs and physical operation have resulted in large increases in the number of cars per train. Two or three years ago, the ordinary freight train moving between Washington and Wilmington consisted of 55 cars—today the standard train carries from 85 to 100 cars. On our Middle division, which extends from Harrisburg to Altoona, freight trains formerly

consisted of 100 cars, but today the standard is from 125 to 130 cars. A train movement of 186 cars recently came to my attention.

"Today, as a result of studies made in connection with the operation of trains, about 90 per cent of the Pennsylvania's freight trains are run on schedules similar to those of passenger trains, whereas a few years ago this was about 35 per cent."

Characteristic improvement in terminal methods, together with the remarkable results secured by following them at the great Altoona, Pa., terminal of the company were described in an article in the *Railway Age* of October 12, page 853.

Large Stock Financing

The railroad's program of capital improvements, as has been noted, has been large, and it has been financed primarily by the sale of stock to existing stockholders and employees. In 1928 a total of \$62,408,250 of common stock was sold, mostly to stockholders and employees at par (\$50), although a small block was sold to the public at market prices, bringing a premium of \$380,410. In April this year, the stockholders approved an increase in the authorized capital stock of the company from \$600,000,000 to \$700,000,000. Inasmuch as all but \$21,000,000 of previously authorized stock had been issued, the step was a necessary one antecedent to the recently announced further offering of \$72,396,750 of stock to stockholders at par. A further offering of \$18,000,000 of stock will be made to employees next year, if the stockholders approve.

By reason of its sales of stock and its earnings in excess of dividend requirements, the Pennsylvania has been able to reduce materially its funded debt, as well as carry on an extensive betterment program. In 1928 the reduction in fixed obligations was \$33,358,984. In

Table III—Pennsylvania Traffic and Earnings, 1923-28

	Pennsylvania Regional System *				Pennsylvania R. R. System †				
	Mileage Operated	Revenue Tons	Revenue Ton-Miles (thousands)	Average Haul, Miles	Average Receipts per Ton-Mile (cents)	Percentage Freight to Total Operating Revenues	Railway Operating Revenues	Railway Operating Expenses	Net Railway Income
1923	11,087	246,905,248	48,622,873	196.9	1.045	69.0	\$775,254,218	\$633,944,606	\$87,927,78
1924	11,082	215,467,806	41,755,039	193.8	1.067	67.6	698,713,249	560,069,354	84,010,39
1925	11,108	229,509,596	45,025,731	196.2	1.045	68.5	727,678,529	569,944,172	107,792,15
1926	11,117	244,704,115	49,116,691	200.7	1.024	69.5	766,989,363	594,547,708	113,151,22
1927	11,095	223,200,064	45,356,971	203.2	1.030	69.0	721,280,031	554,780,715	110,168,49
1928	10,989	215,371,187	45,171,430	209.7	1.024	69.9	705,067,382	520,622,040	125,138,97

* Embraces all transportation companies, except Long Island Railroad and three small companies, and accounts for 94 per cent of system operating revenues. † All transportation companies.

1930 bonds and equipment trust certificates totaling over \$57,500,000 will mature and meeting them by funds received from the sale of stock will reduce fixed charges by \$3,850,000.

At the end of 1928 the Pennsylvania's capital liability—\$569,308,707—exceeded its funded debt by almost three million dollars. The changes in capital structure recently announced will result in a still more favorable ratio. Net income in 1928 totaled \$82,507,613, equivalent to \$7.34 per share on outstanding capital stock. Gross income was more than twice fixed charges and other deductions therefrom. Earnings on capital stock averaged \$6.82 per share in 1927. The per-share earnings in 1929 should be better than those of last year, some estimates running as high as \$10, although a possible slowing down in business in the last two months of the year might reduce this somewhat.

The dividend rate was increased from 7 per cent to 8 per cent effective with the May, 1929, installment. In 1928, after dividend payments totaling \$43,556,684, a balance of \$38,950,928 was carried to profit and loss, bringing the total in that amount to \$185,316,573. In view of the improved earning position of the company, however, it should not be overlooked that the position it has attained is due largely to conservative capitalization, since the ratio of net railway operating income to property investment has been consistently modest—4.80 per cent in 1926 (lower than that in prior post-war years), 4.58 per cent in 1927 and 5.11 per cent in 1928.

The Pennsylvania's reliance on stock sales for its new capital requirements has an important aspect apart from the fiscal, namely, that of public and employee relations. On November 1 of this year stockholders reached the record number of 186,047, largely as a result of stock allotment to employees at par on an installment payment plan. With the stock selling in the market at a substantial premium, this sale to employees at par, particularly on a time-payment basis, has been a valuable concession which cannot but have had a favorable effect from the standpoint of employee relations. A large number of employee-stockholders are still making payments on their stock and, when these payments are completed, the number of owners of the Pennsylvania Railroad will be still further augmented.

Freight traffic in 1928 was divided among the various classification of commodities as follows: Products of agriculture, 4.91 per cent; animal products, 1.00 per cent; products of mines, 59.05 per cent (bituminous coal, 36.68 per cent); forest products, 3.90 per cent; manufactures and miscellaneous, 28.52 per cent; l.c.l., 2.62 per cent. Among the Pennsylvania's outstanding traffic developments in recent years has been its increase in tonnage of perishables. Modern facilities for handling such traffic have been provided at a number of points (including noteworthy new terminals at New York and Philadelphia) and every effort has been exerted to increase this class of traffic. The results, it is reported, are quite gratifying. Fruit and vegetables received at New York in 1928 totaled 69,250 carloads—24,606 being from Western points and 44,644 from the South. This total represented an increase of 18 per cent over 1927, of 50 per cent over 1926, and of 99 per cent over 1925.

Passenger service is a relatively important source of the Pennsylvania's operating revenues—20.6 per cent of the total in 1928. The service also is comparatively profitable, its operating ratio being 79.6 in 1928, as compared with 81.3 in 1927. Passenger revenues in 1928 showed a decline of 7.3 per cent from 1927. For the first nine months of 1929, however, as compared

with the same period in 1928, the decrease in revenues was but 1.6 per cent. It seems, therefore, entirely possible that the drain in revenues from this source may be reaching the end.

Considerable credit must be given the Pennsylvania for the quality which is known as "railroad statesmanship" that has dominated the policy of the company in recent years. By this term is meant an understanding of the railroad's position in the community and industry, a rather broad grasp of the major transportation problems of today, a foresight into what the future may bring and courage to take steps to meet the situation as it is seen. Among instances of this quality which may be cited are its heavy expenditures for terminal improvements, its extensive electrification program, the stock sales plan for employees already mentioned, its pioneer work with air transport, its extensive—and extending—enterprise as a motor transport operator, the attention which it is giving to providing high-grade, on-time service for both passengers and freight, and the intensive advertising campaign which the company has been conducting in recent years. Epitomizing this policy, President Atterbury has declared his belief that railroad companies should not feel it necessary to restrict themselves to providing rail service, but should give the public the best in whatever form of transportation it may require.

Pitting Reduced by Feedwater Heater

By C. H. Koyl

Engineer Water Service, Chicago, Milwaukee,
St. Paul & Pacific

IN the *Railway Age* of March 17, 1928, page 629, I reported the result of operating on our worst pitting district for 2½ years a locomotive fitted with an open feedwater heater for the purpose of excluding dissolved oxygen from the feedwater before it entered the boiler. I am now able to report the completion of the four years' test. The oxygen referred to is the small amount (less than one per cent by volume and less than 12 parts per million by weight) which is always found dissolved in water exposed to the atmosphere.

As pointed out in the earlier article, the importance of this dissolved oxygen in the pitting cycle arises from the fact that iron atoms start a pit only by dissolving in the water. However, water can hold in solution only a very small amount of metallic iron and soon becomes saturated and the pitting stops unless something in the water combines with the dissolved iron to precipitate it. This the dissolved oxygen does, thus making room in the water for the solution of more iron from the flues. Furthermore, an atom of iron can dissolve in water only when it can force out an atom of dissolved hydrogen and these atoms of hydrogen released from solution gather on the other parts of the flue as a film of gas which soon prevents the continuance of the electrolytic current which is necessary to the solution of the iron at the pit, if something does not continuously remove the film; this the dissolved oxygen does by combining with it chemically.

The importance of the removal of oxygen has been firmly established for stationary boilers, but the equipment therefor is costly and too cumbersome for use on

locomotives. This test was made to learn whether a sufficient removal can be effected by an ordinary open heater in ordinary railroad service. It was known from the Altoona laboratory tests that we could not expect an average removal of more than 90 per cent, which is not enough for a stationary boiler, but it was believed that the tumultuous boiling in a locomotive boiler (ten times that in a stationary boiler) would make unnecessary the almost complete extraction which is required in stationary boilers.

The test was made on the Sioux City and Dakota division of the Chicago, Milwaukee, St. Paul & Pacific, commencing in 1925 and being concluded this year. For comparison, another locomotive, also equipped with new flues and a mate in all respects except that it had no heater, was placed in companion service with the test locomotive. During the four years a couple of tubes were removed from the heater engine every two months for examination. At first these tubes were replaced by new ones, but after a couple of years, replacements were made by second-hand tubes from other boilers, many of which had been spot-welded and showed small pit marks surrounding the spot-welds.

At the end of four years' service, the boiler was dismantled and every tube and flue and the boiler shell were examined by six of our best boiler men. All of the original tubes and the new tubes used in replacement were in practically the original condition, while the spot-welded tubes had the same appearance as when they were inserted in the boiler, the small pits being clean and with no indication of deepening. All of the tubes and flues with the exception of the second-hand replacements, were retipped and put back in the boiler for another four years' service. On the other hand, the companion engine has been refluved four times and each time we were able to retip only about 40 per cent of the flues.

No two waters taken into these boilers during the test were exactly alike in chemical content, but a typical water may be said to contain, as it goes to the boiler, chemical compounds as follows:

Calcium carbonate	2 grains per gal.
Magnesium carbonate	trace
Sodium sulphate	60 grains per gal.
Sodium chloride	2 grains per gal.
Sodium carbonate	2 grains per gal.
Sodium hydrate	8 grains per gal.

As this water concentrates in the boiler, it is blown down at intervals and the boiler is usually washed weekly. The total dissolved solids in the water just before washing amount to about 850 grains per gallon and the average water in the boiler during the week may be said to contain:

Calcium carbonate	2 grains per gal.
Sodium sulphate	450 grains per gal.
Sodium chloride	15 grains per gal.
Sodium carbonate	15 grains per gal.
Sodium hydrate	40 grains per gal.

The temperature of the water as it goes from the heater to the boiler varies with the amount of work being done by the engine, from a minimum of about 170 deg. F. to a maximum of about 240 deg. F., averaging about 215 deg., and the oxygen extraction varies accordingly from about 60 per cent to a maximum of about 95 per cent, or an average of 80 per cent, leaving about one cubic centimeter of oxygen per liter in the water as it goes to the boiler.

During the past year we have tested three mated engines on each of four other divisions, one with an open feedwater heater, another with a closed heater and a third without a heater. Two of these divisions used treated water, a third used waters about 30 g. p. g. hard,

to which was added soda-ash in the engine tank, and the fourth division used waters about 15 g.p.g. hard but carrying also a few grains of natural sodium bicarbonate. We have examined all of these boilers at the end of one year's work and in each case we found the open-heater boiler in the best condition, the closed-heated boiler next, and the boiler without a heater last. None of the boilers was badly pitted, there being only small pits on the worst of them and rust spots showing through a thin scale on the others. The lightness of the pitting is attributed to the sodium carbonate and caustic which was contained in all of the waters used by these boilers. The principal value of the five-division test is in the light it throws on the fact that no other railroad using these open feedwater heaters has reported a general reduction in pitting.

In the case of the locomotive fitted up in 1925, and used on the Sioux City division for four years without a pit, great pains was taken to instruct the engine crew and the roundhouse force in the theory of the prevention of pitting by the exclusion of oxygen from the feedwater, in the care that must be exercised to keep the heater in good condition and in its proper use on the road. Pitting had been so bad on this division that the men took great pains to understand the instructions and to carry them out. Fortunately the same boiler foreman and the same engine crew handled the locomotive almost continuously for the four years and no locomotive test was ever conducted with more faithful care. The results speak for themselves.

In this year's test of the four other open heaters, one was used on a treated-water district where the men were so pleased with the reduced consumption of coal and water that they made it their business to see that the slightest defect in operation was remedied at once and the roundhouse forces worked with them. At the end of the year's operation, the condition of this boiler could not have been better. The men described the flues as looking "just like silk hats."

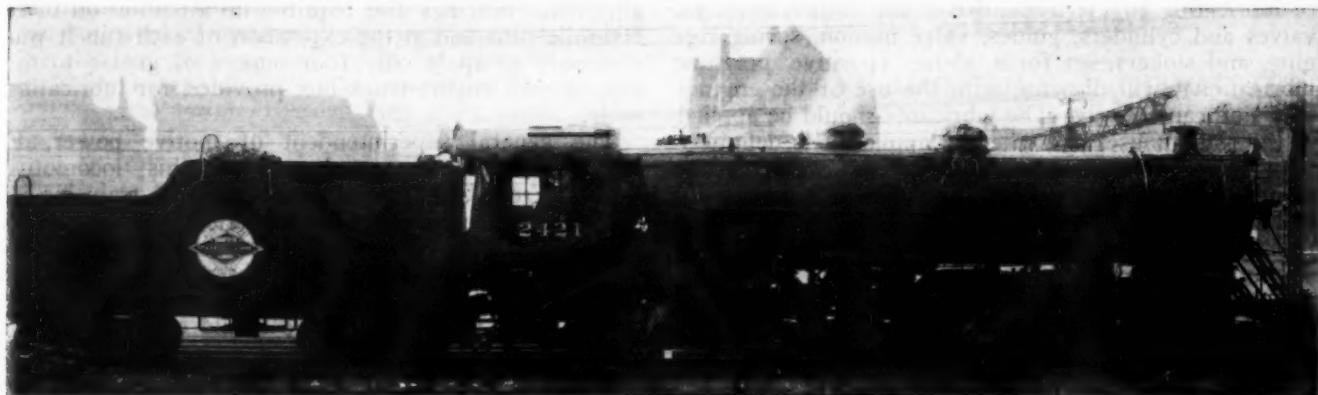
On the other districts the locomotives were pooled and it seemed impossible to get all the crews properly interested. If there was the least fault in the operation of the heater, some of the crews would use the injector but would fail to report the difficulty until an inspector came along. At the end of the year these boilers showed many small rust spots.

I am firmly convinced that in using alkaline or neutral water, there need be no pitting if the boiler is fitted with any good open heater which is kept in proper condition and is intelligently operated. The advantage of preventing pitting by the same means which saves ten per cent of the coal and water is obvious.

* * *



A 4-8-2 Type Locomotive on the Denver & Rio Grande Western



Illinois Central Locomotive at Chicago after 921-Mile Test Run without Lubricating Attention

Illinois Central Runs Lubrication Test

Engineman's oil can dispensed with on 921-mile run of a passenger locomotive from Chicago to New Orleans

WITH the object of determining definitely if locomotives in heavy, fast passenger service can be operated approximately 1,000 miles without lubricating attention, the Illinois Central, during May of this year, equipped Mountain type Locomotive 2421 for a test, in line with the Lubrication Committee's recommendation at the June meeting of the

American Railway Association Mechanical Division in Los Angeles, Cal. The committee's report was concluded as follows:

"Under present day conditions with long locomotive runs, and the locomotives pooled, we believe the present practice of lubricating the locomotive with engine oil should be improved. The adoption of the methods



Test Run Locomotive at Grand Central Station, Memphis, Tenn., November 21, on Train No. 3

Left to Right: J. J. Melley, Standard Floating Journal Company, Chicago; Illinois Central Representatives: W. L. Jones, Air Brake and Lubricating Engineer; E. Von Bergen, General Air Brake, Car Heating and Lubricating Engineer; L. G. Buckner, Locomotive Engineer; I. P. Kennedy, Traveling Engineer; J. F. Welsch, Air Brake Foreman; J. F. White, Fireman; A. J. Pichetto, Air Brake and Lubricating Engineer; E. Bodamer, Superintendent, Memphis Terminal, and C. J. Barnett, Traveling Engineer. At the Right Are R. G. Dudley, Lubricating Engineer, Standard Oil Company of Indiana, and J. H. McGregor, Manager, Alemite Manufacturing Corporation, Memphis.

of lubricating engine truck, driver and trailer bearings, valves and cylinders, guides, valve motion, spring rigging, and stokers, set forth above (positive pressure lubrication), will dispense with the use of the engineer's oil can entirely. The lubricants should be applied in the roundhouse, and when so applied it is definitely known that the locomotive can traverse a distance of as much as 1,000 miles without further attention. We believe that the conditions of today demand definite, positive and efficient locomotive lubrication, and the methods recommended in this report will accomplish this, and thereby very substantially reduce locomotive maintenance, and in addition reduce to a minimum, troubles with hot bearings."

All bearings of Locomotive 2421, formerly lubricated by the engineman with a hand oil can, such as valve motion, spring rigging, guides, crosshead pins, knuckle joints, stokers, etc., were equipped with the Alemite system of lubrication. The ordinary oil and waste-packed engine-truck journal boxes were replaced with Standard floating engine-truck bearings and hub liners. The locomotive was already equipped with a Detroit flange lubricator, a 20-pint Nathan mechanical lubricator and a Dupont type-B stoker.

Alemite-Equipped Bearings Eliminate Oil Can

After operating for a few months in through-passenger service over two divisions between Chicago and Centralia, Ill., a distance of 250.9 miles, it was found that by applying grease to the Alemite-equipped bearings at Centralia, the locomotive could be operated to Chicago and return, 502 miles, without the use of an engineman's hand oil can, and perfect lubrication of the parts was maintained. The Standard floating en-

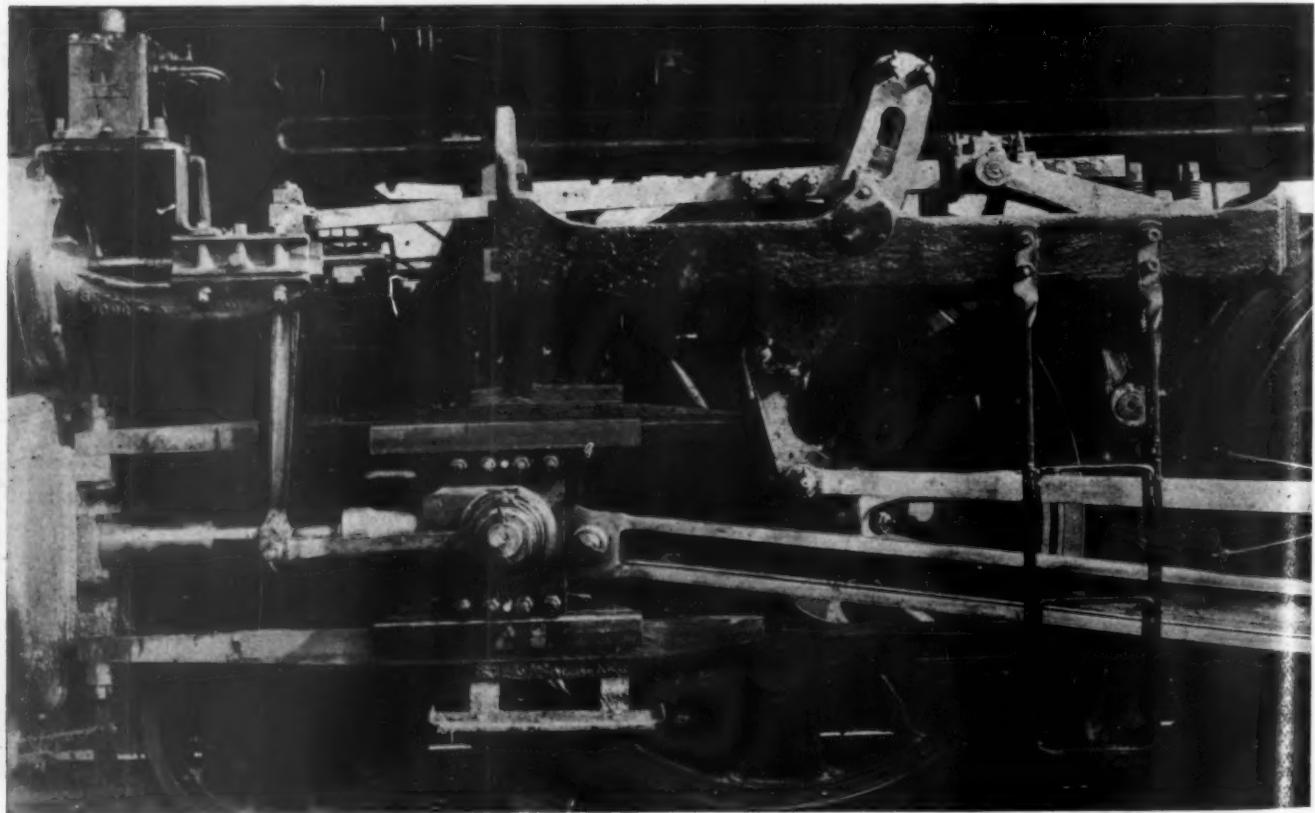
gine truck bearings also required no attention on these 500-mile runs and at the expiration of each run it was necessary to apply only four ounces of grease to the cup on each engine truck box provided for lubricating same.

The general superintendent of motive power, F. R. Mays, then arranged to run this locomotive through from Chicago to New Orleans on train No. 3, the New Orleans Limited, and return to Chicago on trains Nos. 4 and 8, the Chicago Limited and the Panama Limited, under the personal observation of E. Von Bergen, the general air-brake and lubrication engineer, to determine if the locomotive would operate through in this heavy, fast service from the Great Lakes to the Gulf of Mexico, 921.2 miles without requiring lubrication of the above bearings en route.

The New Orleans Limited is a heavy train, consisting of steel baggage, mail and express cars, day coaches and Pullman sleeping cars. The schedule is such that the running time between stops is 60 or more miles an hour for more than 50 per cent of the time. The reason for operating the locomotive northbound on train No. 4, New Orleans to Memphis, and train No. 8, Memphis to Chicago, was on account of there being no main-line coal chutes available at Memphis, making it necessary to cut off the engine and go to the roundhouse for coal. This was done and the locomotive resumed its trip on train No. 8, which follows No. 4 out of Memphis one hour and 40 minutes later.

The Test Run

Locomotive 2421 departed from Chicago on train No. 3, November 19, with 16 cars, handling them through to New Orleans, with the exception of a distance of



Close-up View Showing Location of Detroit Flange Lubricator, Alemite Fittings on Crosshead Pin, Crosshead Shoes, Valve Motion, Etc. Note the Coating of Grease on the Radius Rod and Guides After Running 921 Miles Since the Last Application of Grease to the Alemite Fittings

45 miles, over which 14 cars were handled. Although one hour and 57 minutes of delays were sustained during the trip, the train arrived at the passenger station at New Orleans at 7:50 p.m., November 20, on time.

The same locomotive departed from New Orleans on train No. 4 at 8:30 a.m., November 21, handling 9 cars on train No. 4 to Memphis, and 11 cars on train No. 8 to Chicago, and the train arrived at the Illinois Central station, Chicago, on time, at 9:30 a.m., November 22.

Same Fire Maintained Throughout Test Run

The coal used in the territory between Chicago and Memphis clinkers badly and requires expert firing to maintain fires in good condition for long distances. However, the entire run of 921 miles in each direction was made with the same fire, the only attention necessary being the usual shaking of grates at division terminals where engine crews were changed and ashes dumped from the ash pan.

After arrival at New Orleans on the southward trip, the Alemite-equipped bearings were recharged with grease and six ounces of grease were applied to each Standard floating engine-truck bearing; trailer trucks and tender trucks were oiled, but not repacked; all rod cups were filled and two cakes of journal compound in the driving cellars were replaced on account of being thinner at one end than at the other, although there was an ample amount of grease in the cellars to return to Chicago. Water was changed in the boiler as an extra precaution, although later performance indicated that the locomotive could have returned to Chicago without this. The condition of the locomotive was such on arrival at New Orleans that it could have been turned and made ready for the northward trip within two hours. The only lubrication required en route was adding a wafer of grease to the main and middle connection rod cups at division terminals where engine crews were changed, the side-rod bearings requiring no additional grease en route. The oil level in the mechanical lubricator was restored at Memphis.

Bearing Operation

This demonstration run from Chicago to New Orleans was a complete success, the outstanding feature being the operation of bearings for a distance of 921 miles without the addition of any lubricant and the maintenance of maximum steam pressure with the same fire throughout the trip with the use of coal containing a large percentage of clinkering matter. It demonstrated that locomotives equipped with floating truck bearings, the pressure grease system of lubrication, mechanical lubricator and rod cups of sufficient capacity, can be operated for that distance without the addition of any lubricant by the engineman or others en route, in accordance with the conclusions of the A. R. A. Lubrication Committee, above quoted.

Operations of Inland Waterways Corporation, 1928-1929

	Tons	Revenue	Expenses	Net income	Depreciation
Year ended June 30, 1928					
Lower Mississippi division	1,299,619	\$5,239,375.76	\$4,931,493.83	¹ \$307,879.93	\$313,629.57
Upper Mississippi division	39,969	138,879.60	362,767.12	¹ 223,887.52	32,452.81
Warrior division	396,651	932,208.70	1,070,231.97	¹ 138,025.27	82,602.25
Warrior River Terminal Co.	170,768.91	127,486.73	43,282.18	2,573.17
	1,736,239	\$6,481,228.97	\$6,491,979.65	¹ \$10,750.68	\$431,257.80
Year ended June 30, 1929					
Lower Mississippi division	1,486,945	\$5,801,305.34	\$5,020,474.14	\$780,831.20	\$318,674.25
Upper Mississippi division	133,992	344,373.35	583,992.00	¹ 239,618.65	60,057.99
Warrior division	260,364	782,739.10	943,129.49	¹ 160,390.39	80,246.61
Warrior River Terminal Co.	240,452.14	179,622.64	60,829.50	3,250.10
	1,881,301	\$7,168,869.93	\$6,727,218.27	\$441,651.66	\$462,228.95

¹ Deficit.

Operations of Inland Waterways Corporation

WASHINGTON, D. C.

A PREDICTION that "before long" the government can pass over the facilities of the Inland Waterways Corporation to private capital for operation, is included in the annual report of the Secretary of War in connection with a review of the operations of the corporation for the fiscal year 1929. The annual report of the corporation for the calendar year is not expected until some time next year, but the War Department report gives the following statement of the comparative results of the corporation for the fiscal years 1928 and 1929 on a basis different from that used in the corporation's report for last year, as shown in the accompanying table.

The corporation report for 1928 gave various figures showing a "net income" for the calendar year 1928, "net income from operations" being stated at \$373,707.

"There can be no reasonable doubt," the report says, "that the Inland Waterways Corporation has been of incalculable benefit to the people at large; that it is continually increasing its effectiveness and that it will eventually demonstrate that the development of our interior waterways and the proper utilization of such developed navigable streams will offer, through co-ordination with railways and highways, a system of transportation furnishing cheaper freight rates to all the people who have been taxed to create them; that each participating carrier by joint routes will receive a reasonable return upon the money invested, and that before long the government can pass over the corporation's facilities to private capital for operation, with the assurance that they are so safeguarded by laws, precedents and decisions, that their profitable operation will indicate to private enterprise the desirability of their continued expansion.

"During the fiscal year 1929 a detailed survey was made of the military value of our inland waterways and their relation to national defense. The survey shows that the inland waterways of the Mississippi Valley area and the eastern seaboard are of great military value in augmenting other means of transportation in case of a national emergency.

"It is impossible to state just what joint water-rail and rail-water-rail rates have been put into existence, but 75 per cent of the joint rail-water rates, which should be established, are now effective. Not more than 20 per cent of the rail-water-rail rates, which should be made effective, have yet been established.

"The magnitude of the undertaking to establish joint rail-water, and rail-water-rail rates, with equitable divisions of accruing revenue, is little appreciated.

How the Kansas City Southern Allots Expenditures*

The yearly budgets are each a further step in an improvement program which was adopted 22 years ago

By C. E. Johnston
President, Kansas City Southern

THE system now in use on the Kansas City Southern for the budgeting of maintenance and improvement work was begun in a general way about 1907, at which time a comprehensive engineering report was rendered the management by H. G. Burt, consulting engineer and a former president of the Union Pacific. This report went into the then physical condition of the Kansas City Southern, its traffic at that time, and dealt further with its traffic potentialities and possibilities.

The report on traffic and its probable growth was favorable. However, the actual traffic growth has far exceeded the estimates then made, notwithstanding the fact that they appeared almost fantastically optimistic. The report on physical condition, briefly summarized, was that a railroad would have to be built to handle that traffic.

This report led to a bond issue which provided funds for essentially rebuilding the property. The work undertaken included grade reduction, involving considerable change of line, the re-location of engine terminals causing the abandonment of two then in operation and the construction of three new ones, together with the general rehabilitation of the entire property.

Naturally, this extensive work called for heavy expenditures and it is equally natural that not all the recommended work could be financed. The report referred to formed the first program for improvements seriously undertaken by the management of the Kansas City Southern Railway and it may be added that this original program devised some 22 years ago is still one of the definite aims toward which the railroad is working.

Program and Budget Defined

At this point I wish to give the explicit definition of two words which are used throughout this discussion and which are oftentimes more or less confused. First, the word "program," which is intended to mean a definite, closely connected plan for the direction of effort, year after year, which sets forth in a general way the sequence of individual projects in order to gain a definite end. Our programs are projected five or ten years into the future. Second, the word, "budget." This word conveys more definite meaning than the foregoing for, as used here, it means small portions of perhaps many programs, to be undertaken within a definite time (usually one calen-

dar year) and for which funds are available and appropriated.

The programs are the underlying basis of the budget. Important items of property are considered individually and a period of from five to ten years is selected over which additions, improvements or replacements are spread, careful attention being given to the probable sequence of work, the need for which may actually then exist or may be only anticipated. These programs are prepared by the interested departments, usually under the guidance of consulting advice and carry general estimates of the cost of the work outlined. These programs are submitted to the management and the executive officers and thereafter become recognized as general plans for the guidance of future recommendations, but do not carry any definite authority to proceed with work. They cover, in more or less detail, improvements to and the purchase, replacement and retirement of locomotives, freight cars, passenger cars, shop machinery, rail, bridges, ballast, stations, office buildings, section houses and, with these principal items, many smaller details related to them.

Budgets are divided into two classes, one of which deals with items involving capital charges; the other covers only maintenance. The budget which involves capital charges is known as the additions and betterments budget. In the latter part of the year, the chief engineer and the superintendent of machinery prepare for their own and allied departments a preliminary budget which embraces new work recommended and unfinished work already under way which will incur charges in the succeeding year. This preliminary budget shows the cost of the proposed work, divided as to additions and betterments, maintenance and stock. This preliminary budget is worked down to the point where the charges to capital account are compatible with available funds and the final budget is then submitted for formal approval. However, approval of the budget is the approval only of the total amount shown as charged

to investment and means only that the amount shown thereon can be expended. Since many items incur heavy maintenance charges, it is important that these items be given consideration in the maintenance budget. Again, when emergency work is undertaken, it has to be substituted for one or more items approved on the budget in order to protect the integrity of the total charge to investment.

Budgets for maintenance of way and maintenance of equipment are also prepared on an annual basis and are inter-

* An address presented before the annual meeting of the Railway Business Association at Chicago on November 21.



C. E. Johnston

woven with the improvement budget to provide sufficient funds for maintenance work incidental to the betterment work. The maintenance work in both the road and equipment departments is scheduled with the purpose of avoiding disturbing fluctuations in working forces and, so far as possible, keeping the expenditures more or less uniform throughout the year. The method by which this is accomplished is the equalization of some accounts, which allows a proportionate charge to that account each month without respect to the actual work performed. The two principal accounts in which this is done are rail and ties. At the end of each year all equalized accounts are adjusted to reflect the actual work chargeable to them.

No budget, however carefully planned and prepared, is either self-starting or self-continuing. A budget is nothing more or less than an approved and adapted plan of procedure for which the funds have been appropriated. The carrying out of the budget requires constant and careful supervision. It is of almost equal importance that all the money appropriated be applied to the property and that no more than that amount be approved to be expended. This requires a careful follow-up system and reports come to the management at stated intervals showing the exact status of work performed and money expended. This is perhaps as important as any phase of either programming or budgeting and must be followed up, for the effectiveness of any plan is in its execution and never in its conception.

The foregoing outlines the way in which the Kansas City Southern prepares its budgets and, in a measure, the aims for which it strives. The following will describe briefly what has been accomplished and what it is hoped to accomplish by the budget system.

Under the general improvement program undertaken in 1907, the principal locomotive and car shops, located at Pittsburg, Kan., and Shreveport, La., were improved and enlarged to the extent that they provided approximately twice as much shopping capacity as the traffic at that time required. The management was building for the future, confident that the future would justify it and knowing that the economical thing was to do a good job of building in the beginning instead of adding piece-meal. In approximately ten years the surplus capacity was exhausted. When this occurred, the management started the preparation of an elaborate program for the further enlargement of the Pittsburg shops, and arranged this program to cover, in some items, a three and in others a five year period. Accordingly, a large expenditure for the extension of this shop was absorbed so gradually that it was entirely met from available funds without hardship. No machine over ten years old was left in that shop when any improvement in that particular machine had been made. It was found to be of material advantage to have the shop equipped with modern machines and tools. The machines thus replaced were either sent to shops of lesser importance, when they could be used advantageously, or were sold or scrapped.

The Equipment Rebuilding Program

The Kansas City Southern has a program for rebuilding freight cars under which a certain number are rebuilt each year and these cars are turned back into traffic as good as new cars, each one thoroughly renovated. I mention this particularly because the maintenance charges for this class of work are unusually heavy, and to point out that the maintenance budget must provide for this work as well as the improvement budget.

Locomotives are shopped on a programmed basis and when a particular locomotive has run its assigned mileage it is taken into the shop. It may be functioning perfectly and probably is, but we know that economy demands that attention be given locomotives in proportion to the mileage run. Each locomotive that goes through the back shop is fitted with authorized improvements applicable to its class and in this way locomotives are not only kept in good repair but are largely modernized.

Roadway and Bridge Programs

For years rail laying has been in strict accordance with a program. The approximate amount of rail required was determined in order that a constant annual renewal of that amount would provide a uniform condition of rail on the entire system. This program has been in effect for more than 15 years, with the consequence that in that time the road has not been burdened with unduly heavy renewals in any one period.

Ballasting was handled in largely the same way. A program for a definite minimum thickness of ballast under the tie was spread over a period of approximately eight years. During that time, a specific amount of track was given attention and the work accomplished in such fashion that it was never a hardship.

Similarly, a program covering bridge work was devised and carried out. It included the elimination of many short trestles by concrete culverts or permanent structures of various kinds, as well as the strengthening of certain metal bridges not strong enough for heavy power, together with the entire rebuilding of several major structures such as the bridge over the Arkansas river. All of this important work was carried out in accordance with a long term program prepared to cover this need.

Much has been done over a period of years towards the improvement of passenger stations. This was undertaken in the same way by careful programming. Important towns that were supported by permanent and growing agricultural or industrial areas were first separated from the mill towns and lumber camps which depended upon temporary conditions for their prosperity. These permanent towns were then programmed for substantial stations and the program arranged in such a way that some 10 years would be consumed in its completion. The original sequence was often disturbed by influence or authority which had to be regarded. In general, however, this work has gone on, and is still going on, in accordance with the program.

Transportation Budgeting of Minor Importance

The budgeting of transportation expenses has not yet been carried to any systematized conclusion. At least one other road has done this successfully and it is a subject which is being studied. A large portion of transportation expense varies almost directly with the tonnage offered for movement and it is certain that this portion of the transportation expense would have to depend entirely upon traffic conditions, regardless of any budgeting. However, the elements of transportation, such as fuel consumption, overtime, train load and such items, are given careful scrutiny to see that normal conditions and costs are maintained. These things are a matter of supervision rather than budgeting. Certain other expense which is included in transportation accounts, such as station service and other miscellaneous items, is probably susceptible of successful budgeting but would certainly not exceed 25 per cent of the total cost of conducting transportation. It may be that the

budgeting of these items would give the supervisory forces in charge of transportation a gauge of normal conditions for these accounts. In the main, as long as lost motion is reduced to a minimum through adequate and competent supervision, it would seem that the actual budgeting of the miscellaneous accounts in the transportation department would be of minor importance.

In conducting any business, be it a corner grocery, a manufacturing plant or a railroad, the success of that business is dependent upon one and only one thing—the relationship which exists between earnings and expenses. Some positive current record must be always available in a business as complicated as a railroad, and unless that is true, expenses may mount to the point where drastic curtailment is the only salvation. Drastic curtailment is most objectionable. It demoralizes working forces during its enforcement and incurs the heavy expenses of training new men when ended. Worse even than that, it allows property to deteriorate expensively, requiring greater expenditures to make deferred maintenance effective. The budget system, well planned and carefully supervised, eliminates disturbing fluctuations in the large maintenance accounts, stabilizes working forces, and provides at short intervals, a reliable index of the relationship of earnings to expenses.

creases as compared with last year but increases as compared with 1927. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading			
	Week Ended Saturday, November 23, 1929		
Districts	1929	1928	1927
Eastern	207,835	234,047	180,907
Allegheny	200,351	214,562	168,181
Pocahontas	57,126	60,969	45,210
Southern	138,003	154,161	134,958
Northwestern	112,955	120,857	105,068
Central Western	152,119	157,906	131,241
Southwestern	81,891	86,735	75,077
Total Western Districts	346,965	365,498	311,386
Total All Roads	950,280	1,029,237	840,642
Commodities			
Grain and Grain Products	39,760	54,777	42,755
Live Stock	29,817	32,873	28,141
Coal	192,010	200,890	152,794
Coke	10,975	10,559	9,260
Forest Products	54,796	64,715	56,005
Ore	15,744	17,752	11,030
Merchandise L.C.L.	257,801	260,430	225,629
Miscellaneous	349,377	387,241	315,028
November 23	950,280	1,029,237	840,642
November 16	983,323	1,056,120	968,052
November 9	1,049,475	1,054,353	975,134
November 2	1,071,650	1,103,942	1,039,075
October 26	1,133,810	1,162,974	1,112,816
Cumulative totals, 47 weeks	48,611,689	47,172,296	47,460,529

The freight car surplus for the period ended November 15 averaged 226,131 cars, an increase of 62,808 cars as compared with the week before. This included 123,336 box cars, 65,925 coal cars, 21,338 stock cars and 6,978 refrigerator cars.

Freight Car Loading

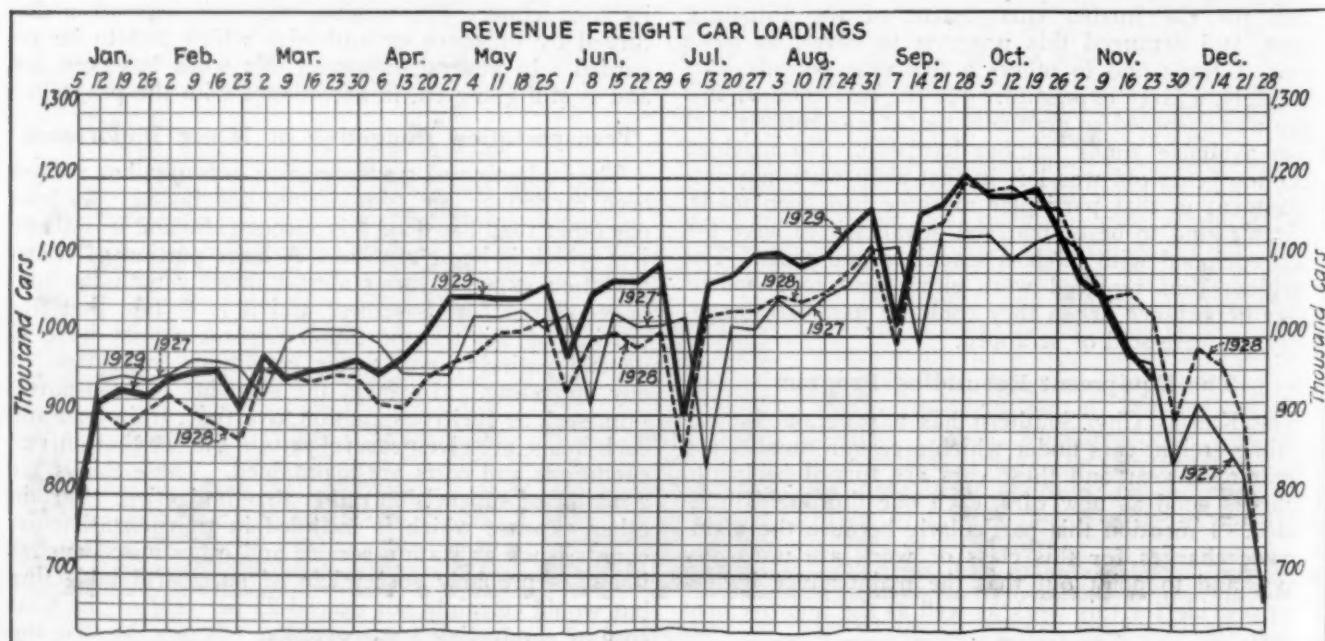
WASHINGTON, D. C.

REVENUE freight car loading in the week ended November 23 amounted to 950,280 cars, a reduction of 78,957 cars as compared with the corresponding week of last year but an increase of 109,638 cars as compared with 1927. All classes of commodities except coke showed a reduction as compared with last year, while all except grain and grain products and forest products showed a reduction as compared with 1927. The largest reduction as compared with last year was that in miscellaneous freight, of which 37,864 cars less than the corresponding figure for last year was reported. All districts reported de-

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended November 23 totaled 63,855 cars, an increase over the previous week of 1,030 cars but a decrease of 22,140 cars from the same week last year.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
November 23, 1929	63,855	35,775
November 16, 1929	62,825	37,130
November 9, 1929	71,782	37,570
November 24, 1928	85,995	40,097
Cumulative Totals for Canada		
November 23, 1929	3,248,878	1,918,752
November 24, 1928	3,358,688	1,856,214
November 26, 1927	3,071,176	1,753,596



I. C. C. Annual Report

Congress urged to consider holding company situation with view to legislation

WASHINGTON, D. C.

A THOROUGH investigation and serious consideration by Congress of the activities of holding companies, such as the Alleghany Corporation and the Pennroad Company, with a view to possible legislation bringing them within the regulatory power of the commission, is urged by the Interstate Commerce Commission in its annual report to Congress. The commission points out that whereas in the interstate commerce act Congress manifested a clear intent to subject the unification of carriers to the orderly processes of a carefully planned scheme of public regulation, railroads in many instances are being brought under a common control through acquisition by individuals and by corporations over which it has no jurisdiction. The commission does not undertake to suggest specific legislation and says it is not for the present prepared to go "further than to call this problem, together with its evident dangers, to the attention of the Congress, accompanied by an expression of our conviction that it merits thorough consideration."

Consolidation Plan Under Consideration

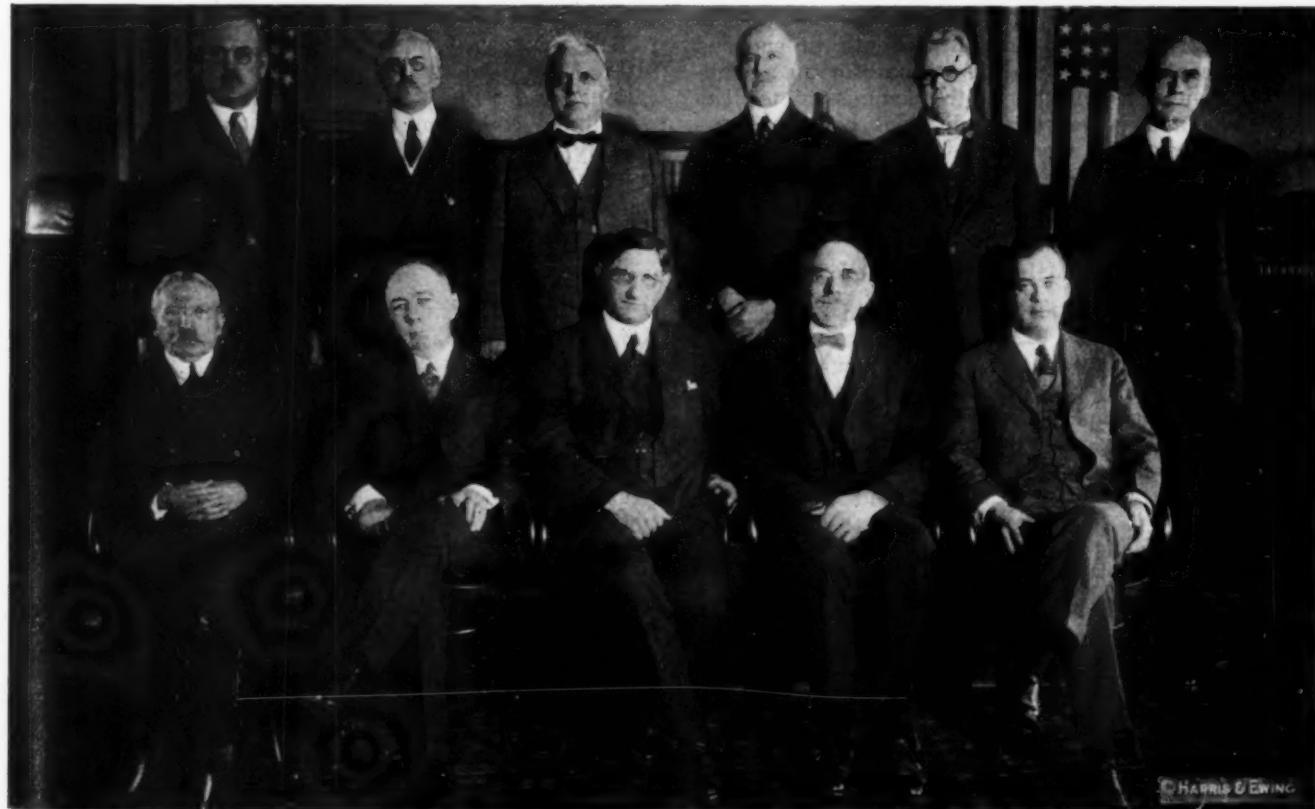
In regard to consolidation the commission expresses the belief that, since Congress has not amended the consolidation provisions of the law, it was its duty to proceed to comply with the mandate that it prepare a consolidation plan and that "accordingly the commission

now has the question actively before it. It is receiving our earnest consideration. Although it cannot be stated definitely when we will be able to complete the task, the hope is entertained that a plan may be adopted and published soon after the convening of Congress in regular session."

Recommendations

Besides repeating many of its recommendations for legislation which have been included in former reports the commission says that unless sections 10 (1) and 20 (7) of the act are amended so as to make them apply specifically to independent contractors and their officers and agents those sections can not be successfully invoked by the government against such persons for the violations referred to therein except in instances where collusion between those persons and the carrier can be shown. Section 10 (1) refers to general violations of the act and section 20 (7) refers to the falsification of records.

The specific recommendation as to holding companies is: "That in view of the fact that acquisition of control or of an amount of stock sufficient to influence the policies of competing railroads, either by individuals or other non-carrier corporations, may result in the suppression of competition, consideration should now be given by the Congress to possible legislation."



The Interstate Commerce Commission (More Recent Appointees Not Shown)

The commission also recommends that paragraph (4) of section 15 be amended to restrict the "long-haul right" to originating carriers, because of the Supreme Court decision in *United States v. Missouri Pacific*, holding that in connection with the establishment of through routes section 15 (4) prohibits the commission from requiring a railroad to join in an all-rail through route which does not embrace its long haul unless the inclusion of its long haul would render the route unreasonably long.

It is also stated that the present provisions of section 15a relating to the making of loans from the contingent fund in effect make loans unavailable except possibly during times of financial stress and the commission recommends amendments to overcome these defects.

The O'Fallon Case

In view of the practical situation resulting from the decision of the Supreme Court in the O'Fallon case and pursuant to recommendations made in successive previous annual reports regarding methods for bringing valuations up to date, the commission repeats these recommendations in the language of its report for 1923, as follows:

We direct serious consideration to the necessity of some amendment. Amendments have been suggested embodying different theories as to the proper method to be adopted, in substance as follows:

(1) An amendment providing that from and after completion of the valuation of the property of a carrier as of a fixed date, the commission shall, from time to time as it may have occasion to use the same, bring the valuation to date by adding to or subtracting from its original basic valuation of the property the net property changes, measured in dollars and cents, that are properly chargeable to or deductible from property account.

(2) An amendment providing that, from and after completion of the valuation of the property of the carrier as of the designated valuation date, the commission shall from time to time, according as it may have occasion to use the value of the property in performance of duties imposed on it by the act, ascertain and determine the condition and value of property on subsequent dates, taking into account any changes in such condition or value which may have taken place subsequent to the last preceding valuation date, and giving due consideration to all the elements of value recognized by the law of the land.

Recommendations that paragraphs of section 15a relating to recapture and paragraph (f) of section 19a relating to bringing valuations up to date, be clarified by amendment, are repeated, as is that for an amendment of section 17 to authorize the commission to delegate duties and powers to individual commissioners and employees. The recommendations for changes in the consolidation section including a repeal of the requirement that the commission prepare a plan, are not repeated.

Railway Mileage Increased

That part of the report devoted to the Bureau of Statistics points out that the length of the steam railway system in the United States, after having slowly declined from 1916 to 1927, in 1928 showed an increase of 178.34 miles compared with the total for 1927 and says that for every mile of first track there is now nearly two-thirds of a mile of other tracks.

Commenting on railway earnings and expenses the report says:

It will be noted that the revenues for the 12-month period ending with August, 1929, the latest 12-month period for which returns are available, were approximately the same as those for the last peak year, 1926, while the expenses were less for the 1929 period than for 1926. The increase in net railway operating income, which is the remainder after expenses, taxes, and hire of equipment and joint facility rents have been deducted from operating revenues, for the 12-month period ending with August, 1929, was \$140,000,000, or 11.94 per cent over that for 1928; \$100,000,000, or 8.24 per cent greater than that for 1926; and \$351,000,000, or 36.49 per cent greater than that for 1923. Between December 31, 1923, and December 31, 1928, there was, however, an increase in investment, after deduction of the increase in the depreciation reserve, of \$2,543,142,146.

Apparently no abnormal change in maintenance policy has occurred in recent years when the Class I railways are considered as a whole, but the proportion of revenues spent for equipment maintenance has declined each year since 1923.

The ratio of taxes to revenues continues to show a tendency to increase. For 1928 tax accruals amounted to \$389,432,415, which was 6.37 per cent of the operating revenues. For 1927 the percentage was 6.13, for 1926, 6.09, and for 1925, 5.86. Of the taxes for 1928, 22.6 per cent went to the federal government and 77.4 to other agencies.

The improvement in the net railway-operating income above noted has resulted also in a growth in the net income after fixed charges, and in dividend declarations. A satisfactory statement of aggregate railroad dividends is difficult to make owing to complications arising from intercorporate relations.

Bureau of Finance

The Bureau of Finance reports that during the year (ended October 31, 1929) there were filed 79 applications for authority to construct new lines or extend existing lines, making a total of 3,307 miles of road. Certificates were issued in 45 cases authorizing 618 miles of new construction; 8 applications, covering 464 miles, were denied; 11 were withdrawn and 1 dismissed. The commission has been advised by carriers during the year that approximately 1,005 additional miles of road have been completed in addition to 3,424 miles previously constructed under commission certificates issued since the effective date of the transportation act in 1920. There were 69 applications filed during the year for authority to abandon mileage totaling 834 miles. Forty-eight certificates were issued during the year authorizing abandonment of 539 miles. Sixty-seven certificates were issued authorizing operation or acquisition and operation of 2,035 miles. Also 56 applications were filed for authority to acquire control and 44 authorizations were issued, 3 denied, 3 dismissed and 2 withdrawn.

Authorizations were issued during the year for the issuance of \$1,160,383,991 of new securities in addition to 115,344 shares of stock without par value. The total includes \$314,133,446 par value of stock; \$463,653,100 of mortgage bonds; \$246,225,000 of debentures; \$19,283,885 of notes; \$112,965,000 of equipment obligations; and \$4,123,560 of receivers' certificates.

"All the equipment obligations, except those issued directly to the builders, were sold at competitive bidding," the report says. "The table given on page 12 of our last annual report gives certain data with respect to the sale of equipment obligations and of bonds in amounts of \$100,000 and over to bankers, and resales by them to the public, in cases where complete sales information is available. During 1928, equipment obligations in the amount of \$33,525,000 were sold on an annual cost basis of 4.4 per cent to the carriers, a yield basis of 4.31 per cent to the public, and a spread in price to the bankers and to the public of 64 cents per \$100. Corresponding figures for the first six months of 1929 were \$51,555,000, 5.17 per cent, 5.02 per cent, and 92 cents per \$100, respectively. During 1928, \$351,235,000 of bonds were sold on an annual cost basis of 4.73 per cent to the carriers, a yield basis of 4.60 per cent to the public, and a spread in price to the bankers and to the public of \$2.33 per \$100. Corresponding figures for the first six months of 1929 were \$94,584,000, 5.12 per cent, 4.93 per cent and \$2.40 per \$100, respectively."

Five claims are still pending for the six-months' guaranty after the termination of federal control, which it is estimated will require approximately \$200,000 to settle. The total amount certified in disposing of 662 claims was \$528,985,521.

The Bureau of Service, after outlining its activities in co-operation with shippers and carriers, and giving

some statistics of the year's performance, comments as follows:

A substantial number of complaints, chiefly of local character, have been registered by shippers and receivers of freight during the past year, but in general the carriers have provided an adequate supply of cars and handled freight traffic with commendable promptness and speed. There has been no extensive shortage of freight cars or motive power and no nation-wide embargoes have been necessary. The outstanding transportation accomplishment of the year was the prompt handling, in most instances, of the heavy shipments of grain offered in July and August which was made possible by reducing unserviceable equipment to a minimum and assembling grain cars in originating territory in advance of the movement. The extraordinary volume of the shipments which moved within a relatively short period occasioned some congestion at certain ports and primary markets, and resulted in the laying of some embargoes.

Valuation

The Bureau of Valuation reports that final valuation reports have been adopted in 820 cases, covering 140,247 miles of road. Of these, 528 cases, covering 131,780 miles of road, were decided after hearings on protests of the tentative valuations and 292 cases were reported in default of protest. Examinations for the purpose of bringing valuations up to later dates have been completed on 659 operating systems whose mileage aggregates about 205,000 miles of road. These examinations cover an average period of 9.3 years subsequent to the various dates of valuation and represent about 1,895,000 mile-years. There still remains to be examined an average of approximately 855,000 mile-years, to December 31, 1927. Examinations are now in progress on 35 operating systems whose mileage aggregates about 45,000 miles of road, and are considered to be about 60 per cent complete. Complete returns have been received from about 400 operating carriers on requests for data called for by orders issued for the purpose of bringing valuations to December 31, 1927, and it is estimated that the number of completed reports will be increased to about 550, comprising about 40,000 miles of road by January 1, 1930, and will be further increased to about 650 reports, covering about 125,000 miles, by June 30, 1930.

Formal Docket

The formal complaints filed numbered 1,520, of which 1,192 were original complaints and 328 subnumbers, a decrease of 173 as compared with the previous period. The commission decided 1,403 cases and 374 have been dismissed by stipulation or on complainants' request, making a total of 1,777 cases disposed of, as compared with 1,900 during the previous period.

Approximately 105 formal and investigation and suspension cases have been reopened for further hearing and reconsideration.

The commission conducted 1,355 hearings and took approximately 219,519 pages of testimony, as compared with 1,415 hearings and 319,557 pages of testimony during the preceding period.

The following statement shows certain facts with respect to the condition of this docket as of October 31 of the years indicated:

	1926	1927	1928	1929
Formal complaints filed	1,314	1,318	1,404	1,192
Subnumbers	210	243	289	328
Investigation and suspension cases instituted	268	213	189	176
Cases under submission at end of period:				
Regular docket	462	633	483	512
Shortened procedure	136	291	230	159
Cases disposed of, including subnumbers and reopened cases	1,499	1,657	2,166	2,120
Number of pending dockets	2,555	2,852	2,740	2,477

Twenty-eight investigations are listed in the report as among the more important of those pending.

Since 1920 the commission has received reports from carriers in response to its annual orders of excess in-

come amounting to \$17,428,486, of which \$1,003,619 was reported by 14 companies in 1928. The total payments of one-half the excess income preliminarily computed have amounted to \$8,607,128, and interest has increased the general railroad contingent fund to \$10,196,100 but the bulk of the payments has been made under formal protests and reservations and consequently, the report says, the fund has not been available for the purposes contemplated by the statute. The Bureau of Accounts, whose field force has largely been devoted to accounting examinations for the purpose of determining the correct net railway operating income of the roads, during the year made 595 such examinations, bringing the total thus far made for all recapture periods from 1920 to 1928 to 3,133. Net railway operating income has been finally reported by the bureau in 1,900 cases, in which carriers' figures have been increased an aggregate of \$22,002,796.60 in 1,099 cases and reduced \$6,672,453.25 in 553 cases. In 248 no change resulted from the examinations. There are 1,059 cases in which final reports have not been made but in which there have been tentative determinations. In 671 of these an increase of \$91,797,235.80 is indicated, and in 343, a decrease of \$58,714,606.55. In 45 cases no change occurs in carriers' figures. Combining the final reports with the tentative determinations of net railway operating income, the accounting examinations result in increasing net railway operating income in 1,770 cases by \$113,800,032.40 and in decreasing it in 896 cases by \$65,387,059.80, a total net increase of \$48,412,972.60. The reports of 174 recently completed examinations have not been transmitted from our field offices and are not included in the foregoing figures.

Recapture

"It will be seen," the report says, "that a great deal has been done toward the final determination of the two ultimate factors—property value and correct net railway operating income—which are determinative of the amount of excess net railway operating income payable into the contingent fund. But, as explained in our previous reports, our efforts in the final stages of this work looking toward the actual recovery of the amounts due have heretofore been very largely curtailed due to litigation * * * In the recapture periods 1920-1928 our preliminary computations, made following the method of valuation outlined in our decision in the *St. Louis & O'Fallon case* as closely as the somewhat limited data at hand permitted, showed 416 roads indebted to the contingent fund for one or more years. Out of this number hearings were held or partly held in the interval between the Dayton-Goose Creek and St. Louis & O'Fallon proceedings in 36 cases, which for the most part involved small or comparatively small roads.

"The amount due from the carriers, according to preliminary computations made in the manner outlined above, is approximately \$300,000,000 for the years 1920-1928. As a result of the Supreme Court's decision in the *St. Louis & O'Fallon case*, this estimate must be changed. It is estimated that under the present system of quasi-judicial hearing procedure a minimum of six years would be required to dispose of the present arrearage, and even at the end of that period the work would hardly be current, owing to accumulations during the interval.

"We have created a recapture board of four members drawn from the staff of as many different bureaus with the duty of proceeding in the hearing of recapture cases as expeditiously as circumstances permit."

"The comprehensive revisions of class rates in vari-

ous parts of the country which have been in process during the past few years have now either been completed or are nearing completion. The revised rates within southern territory and between that territory and official territory on the north have been in effect for more than a year and a half. Complaints from the states of North Carolina and Kentucky are pending which bring in issue certain of the interterritorial rates, but with that exception the revised rates have apparently given rise to little or no complaint," the report says, "North Carolina and Kentucky border on official territory, where a classification prevails which differs radically from that in southern territory and where the class rates have been designed to serve somewhat different purposes.

"These differences between adjoining territories in classifications and structural design of rates tend to cause complaint in border districts and create problems for which no wholly satisfactory solution has yet been found. The territorial revisions, when completed, will improve this situation, but eventually it may be necessary to give it further attention and to consider even the advisability of bringing about substantially complete uniformity in classification throughout the country.

"With the revisions of class rates in official and western trunk-line territories, between those territories, and between western-trunk line and southern territories, all of the class rates in the country will have been revised except the transcontinental rates and those within Mountain-Pacific territory. As a result of various complaint cases which have been decided, there is now a substantial degree of uniformity in the latter, although there has been no complete revision."

Locomotive Inspection and Safety

The work of the bureaus of Locomotive Inspection and Safety is covered more in detail in separate reports but accounts of their activities are included in the report of the commission. The locomotive bureau says in part:

The amendment of June 7, 1924, which authorized the employment of 15 additional inspectors with subsequent increased appropriations, has enabled the bureau to function more effectively and to keep in closer touch with the general condition of locomotives. The effect of this is illustrated in the reduction of the number of accidents resulting in casualties to persons.

For instance, in 1923 we inspected 63,657 steam locomotives of which 65 per cent were found with reportable defects.

In 1929 we inspected 96,465 steam locomotives and 1,099 locomotive units other than steam. Twenty-one per cent of the steam locomotives and 12 per cent of the locomotive units other than steam were found with reportable defects.

The number of locomotives ordered withheld from service also shows a marked and gradual decline. For instance, in 1923 there were 7,075 steam locomotives ordered withheld from service because of being in violation of the requirements, until they were put into serviceable condition as required by section 6 of the law. In 1929 there were 1,490 steam locomotives and 4 locomotive units other than steam ordered withheld from service.

In 1923 there were 1,348 accidents caused by the failure of some part or appurtenance of steam locomotives which resulted in the death of 72 persons and the serious injury of 1,560 others. In 1929 there were 356 such accidents which resulted in the death of 19 persons and the serious injury of 390 others.

The Bureau of Safety, in addition to the usual statistics and reports of its work, includes a table showing expenditures by the railways in 1928 for the improvement of safety and protection amounting to \$194,903,954, in addition to items totalling \$93,208,386 chargeable to operating expenses.

Regulation of Holding Companies Suggested

In our last annual report we called attention to the acquisition by individuals or groups of individuals of control of railroads. We stated that this might seriously affect the

maintenance of competition among carriers. Corporations organized as trading, investment, or holding companies appear also to be active in acquiring control of or substantial interests in various carriers. It seems clear that the acquisition of control or of an amount of stock sufficient to influence the policies of competing railroads, either by individuals or by other non-carrier corporations, may result in the suppression of competition in a manner no less harmful than if such control be exercised directly by one carrier over another.

Section 5 of the interstate commerce act directs the commission to prepare and adopt a plan for the consolidation of the railroad properties of the continental United States into a limited number of systems which shall conform as closely as practicable to certain broad specifications which the Congress has laid down. * * * in this section of the interstate commerce act the Congress manifested a clear intent to subject the unification of carriers by railroad, one with another, to the orderly processes of a carefully planned scheme of public regulation.

There are, however, means whereby unification of carriers can be brought about without consolidation into one corporation for ownership, management, and operation and without, strictly speaking, the acquisition of control of one carrier by another. To illustrate this, it developed in *Stock of Denver & Rio Grande Western R. R.*, 70 I. C. C. 102, that the Western Pacific Railroad Corporation, a holding company which owned all of the stock of the Western Pacific Railroad Co., an operating carrier, was proposing to acquire all of the stock of the Denver & Rio Grande Western Railroad Co., another operating carrier, thus unifying these two carriers as effectually under common control as if one had directly acquired the stock of the other. We found, however, that the "proposed acquisition of applicant's stock by the holding company does not constitute a consolidation of the property of two or more carriers by railroad subject to the act into one corporation for the ownership, management, and operation of properties theretofore in separate ownership, management and operation within the meaning of paragraph (6) of section 5 of the act." And we further found that "inasmuch as the holding company is not a carrier engaged in the transportation of passengers or property subject to the act, the acquisition of control of the applicant by the holding company is not within the scope of paragraph (2) of section 5."

These, however, were carriers whose lines joined end to end and were in no sense parallel or competing lines. If competition had existed, the unification would probably have been subject to the prohibition of section 7 of the Clayton Antitrust Act, the first two paragraphs of which read as follows:

"That no corporation engaged in commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital of another corporation engaged also in commerce, where the effect of such acquisition may be to substantially lessen competition between the corporation whose stock is so acquired and the corporation making the acquisition, or to restrain such commerce in any section or community, or tend to create a monopoly of any line of commerce.

"No corporation shall acquire, directly or indirectly, the whole or any part of the stock or other share capital of two or more corporations engaged in commerce where the effect of such acquisition, or the use of such stock by the voting or granting of proxies or otherwise may be to substantially lessen competition between such corporations, or any of them, whose stock or other share capital is so acquired, or to restrain such commerce in any section or community, or tend to create a monopoly of any line of commerce."

Clearly the second paragraph above quoted is designed to prevent a corporation which is wholly or in part a holding company from acquiring stock of two or more corporations engaged in commerce, including railroad companies, where the effect of such acquisition may be, among other things, to substantially lessen their competition with each other. Clearly, also, the first paragraph, because of the words "directly or indirectly," would cover the indirect acquisition by one railroad company of the stock of another through one or more subsidiary corporations.

But a further means of unifying carriers through common control or affiliation has been developed which, in our opinion, merits most serious attention. This method also utilizes the mechanism of holding companies, but in a somewhat different way. It may be illustrated by relating our understanding as to the facts with respect to two important holding companies which have recently been created. One of these is the Alleghany Corporation and the other is the Penn- road Co. Whether or not our understanding as to the facts is in all respects correct we are unable to say, since we have no direct jurisdiction over either of these companies but it will serve sufficiently well for purposes of illustration.

Both of these companies, as we understand the situation, are purely holding companies. That is to say, the property which they own is not physical property but consists solely of the stocks or securities of other companies. The Alleghany Corporation now owns various stocks of railroad companies. It is not controlled by any railroad company but is controlled through a combination of direct and indirect means, by certain interests which control through similar means the New York, Chicago & St. Louis, the Erie, the Pere Marquette, and the Chesapeake & Ohio railroad companies. The Pennroad Co. also owns various stocks of railroad companies. It is not controlled by any railroad company as such, but its stock is held under a voting trust agreement, continuing until May 1, 1939, and the voting trustees are the president and two other directors of the Pennsylvania Railroad Co.

If these facts are correct, the Alleghany Corporation can, by acquiring a controlling interest in the stock of a railroad company, bring it under common control with the railroad companies above mentioned which are controlled by the same interests as control the Alleghany Corporation, but without itself holding control of or being controlled by any one of these railroad companies as such. In a similar manner the Pennroad Co., by acquiring stock control of a railroad company, can bring it under common control with the Pennsylvania Railroad without itself controlling or being controlled by the latter carrier as such. In other words, common control can be effected in both instances by a chain, one vital link in which is made up of the control exercised, directly or indirectly, over two or more corporations by individuals. The process may, of course, be facilitated by reducing the control of the holding company or of one or all of the carriers involved to a relatively small if not insignificant financial interest through various devices, such as limitation of the voting power of certain classes of stocks, the superimposing or pyramiding of one holding company on top of another, and the like.

Where parallel or competing carriers are involved we are not prepared to say that a process of virtual unification so brought about is not amenable to the provisions of section 7 of the Clayton Antitrust Act. These provisions are couched in very broad language, and it will eventually be for the courts to determine how inclusive and effectual they are. Where no competition is involved, however, it is obvious that if our decision in *Stock of Denver & Rio Grande Western r. r. supra*, was right, such unifications may be brought about without authority from or regulation of this commission. Certainly if common control of two railroad companies by a single holding company is neither a consolidation under section 5 (6) of the interstate commerce act nor an acquisition of control under section 5 (2), as we found in that case, the same conclusion may be reached as to common control brought about by utilizing a holding company in combination with powers of control possessed by certain individuals. Plainly, also, if this be the situation, the subjection of the unification of carriers by railroad to the orderly processes of a carefully planned scheme of public regulation, which section 5 was designed to accomplish, is very likely to be partially or even wholly defeated, subject to the possibility that the Clayton Antitrust Act may in some measure, after protracted litigation, enable control over the situation to be maintained.

We call this matter to the attention of the Congress because we believe that it deserves thorough investigation and serious consideration. What the appropriate remedy may be we do not undertake for the present to say. Difficult legal, and perhaps constitutional, questions are involved, and to some extent the remedy must be shaped by the facts which thorough investigation may disclose. Attempts to regulate somewhat similar situations have been made in some of the States. For example, we understand that the New York Public Service Commission act, chapter 48 of the Consolidated Laws of New York, section 70, makes the following provision:

"Save where stock shall be transferred or held for the purpose of collateral security only with the consent of the Commission empowered by this chapter to give such consent, no stock corporation of any description, domestic or foreign, other than a gas corporation or electrical corporation or street railroad corporation, shall purchase or acquire, take or hold, more than 10 per centum of the total capital stock issued by any gas corporation or electric corporation organized or existing under or by virtue of the laws of this State . . ."

But such acquisitions are made valid if approved by the Public Service Commission. Identical or similar provisions exist in other States. Other possible means of meeting the situation might be suggested. For the present, however, we are not prepared to go further than to call this problem, together with its evident dangers, to the attention of the Congress accompanied by an expression of our conviction that it merits thorough consideration.

A Fairmont Inspection Car

FINE appearance and present day standards of comfort are found in a new inspection car manufactured by Fairmont Railway Motors, Inc., Fairmont, Minn., and designated as Fairmont Motor Coach No. 2110. This coach provides accommodations for seven passengers, including the driver, with space for two additional folding seats. All seats are upholstered in genuine brown Spanish leather and have reversible backs and deep boxed springs. The ceiling and panels below the windows are covered with Spanish art leather to match the seats and all wood-work is finished in walnut. The floor is attractively covered with battleship linoleum.

The interior of the coach is well lighted by four dome lights and ventilation is furnished by two roof ventila-



The New Fairmont Motor Coach

tors. Heat is provided by a Tropic-Aire heater, which utilizes hot water from the engine, and is circulated by means of an electric fan in the heater.

The coach is powered by a four-cylinder Red Seal Continental H9 Industrial motor which develops 33 hp. at 2500 r.p.m. Gasoline is furnished to the engine from a 20-gal. tank at the rear of the chassis by means of a vacuum. Since this same engine is used in Fairmont A5 large extra gang cars and M27 weed burners, service is simplified and parts are quickly obtained from local Continental distributors or from Fairmont.

Electrical equipment consists of an Auto Lite electric starter, generator, battery and lighting system, there being two front headlights and one at the rear, two red marker lights at each end and an electric horn. Power is transmitted by means of the Brown-Lipe three-speed transmission and the Fairmont reversible final drive. The car has three speeds, either forward or in reverse. The gears, which are of hardened cut steel, are enclosed and run in oil on ball or roller bearings. A Spicer propeller shaft and universal joints are used. There are no chains.

The chassis is of all-steel construction and is mounted on coil springs. The 20-in. wheels are provided with demountable tires of $\frac{1}{2}$ in. to $\frac{5}{8}$ in. drop-forged manganese carbon steel of the same composition as locomotive tender wheels. To provide maximum durability, the body is constructed of strong aluminum alloy and ash wood, with patented laminated body posts. All joints are mortised and tenoned, screwed and glued and reinforced with special iron braces. Out-

side panels are No. 20 gage, lead-finished sheet steel and the joints are covered with one-inch, half-oval aluminum moulding. The exterior is finished in lacquer, of a color selected by the purchaser.

The car is provided with two front side doors and one rear door, the rear door being accessible by means of a center aisle. The four side windows, as well as the side door windows, are of $\frac{1}{4}$ -in. polished plate glass and may be adjusted up or down by means of automobile-type regulators. A windshield wiper is provided at each end of the car.

Steel Trusses Support Forms for Concrete Arch Bridge

IN CONNECTION with the extensive new terminal project which the Pennsylvania now has under way at Philadelphia, a rather unusual scheme is being employed for supporting the forms for a four and six-track concrete arch bridge that is being constructed over the Schuylkill river to carry the electrified suburban trains of the road into the city proper. Instead of building heavy timber falsework in the river to support the centering for the concrete arches, the Pennsylvania has erected temporary overhead steel truss spans, which will support the arch forms by means of suspenders. This method of supporting the forms was adopted because of the great depth of silt in the bed of the river, which would have made the driving of piles of sufficient length to support the concrete arch very costly, and also, because of the inadvisability of blocking the river channel with bents for so long a period, even though the channel is no longer used extensively for navigation above the bridge site.

The arch bridge being constructed is a reinforced concrete structure with two main arches of 172-ft. span, supported on two abutments and a pier in the center of the river channel. Owing to the rather congested track layout necessary in the vicinity, the bridge will be on a skew and will vary in width from 96 ft. at the east end to 132 ft. at the west end, in order to carry the track arrangement planned. The narrower part of the bridge will carry four main tracks, while the wider part at the west end is being provided to afford room for two additional tracks which will join the main tracks on the bridge. When completed, the concrete structure will be faced with stone and will be provided with low ornamental parapets along the sides so as to present a pleasing appearance in harmony with the plan to beautify the river front in this vicinity.

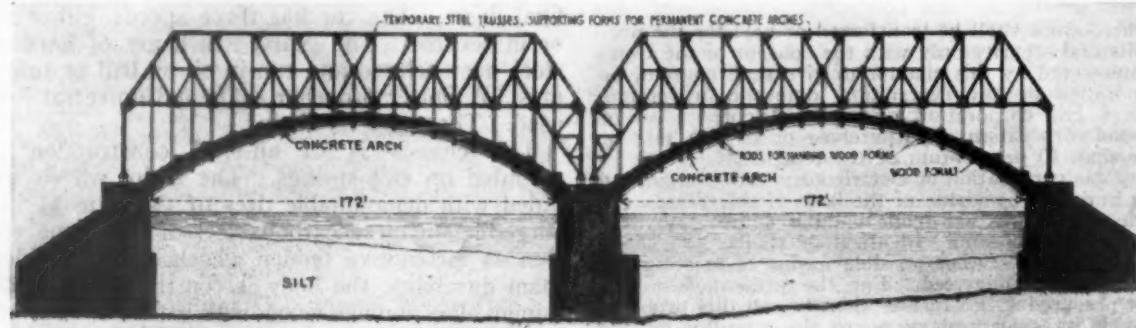
In supporting the arch forms from overhead, the Pennsylvania provided temporary pile bents in the river channel, and constructed two temporary steel truss spans, one over the location of each arch, these spans consisting in each case of four Baltimore trusses tied together with the necessary struts, laterals and sway bracing. These truss spans are supported on the tops of the abutments and the center pier by means of steel bents of sufficient length so that the bottom chords will clear the completed arches at the crown, the bents over the pier being knee-braced to the second panel point of the bottom chords. Bolted connections were used wherever possible to facilitate erection and dismantling.



The First Section of the Arch Centering Supported from the Steel Truss Spans

As soon as the trusses were completed, the temporary bents in the river were removed. In the construction of the arches, now under way, the arch centers are being supported from the trusses by means of steel rods suspended from the lower chords of the trusses and extending to transverse beams under the wooden ribs of the arch forms that carry the lagging.

These truss spans, which are obviously much narrower than the bridge, will be used virtually as gantry travelers during the concreting of the arches. The arches will be constructed in longitudinal sections of a width that can readily be supported by the truss spans while in a given position. As the sections of the arches are completed, the truss spans will be moved laterally over the tops of the abutments and the river pier to positions for supporting the centers for the adjacent sections.



Sketch Showing How Steel Falsework Will Support Forms for the Reinforced Concrete Arches

California-Oregon Construction Hearing Concluded

Southern Pacific completes opposition testimony—Great Northern and Western Pacific present rebuttal witnesses

THE Interstate Commerce Commission hearing on the proposed construction by the Great Northern and the Western Pacific of 200 miles of new railroad in northern California and southern Oregon was concluded on November 27 after Charles D. Mahaffie, director of finance of the Commission, had taken testimony from witnesses for 12 days. The two applicant roads were then allowed 60 days in which to file briefs, while the opposition was given 30 days thereafter in which to file their briefs and the applicants were allowed 20 days after the expiration of the 90 days in which to file answering briefs. At the close of the hearing the attorneys for the Great Northern presented a motion asking that the case be submitted to the full Commission without adherence to the usual procedure of a report by the examiner and an action by Division 4, Finance. It was explained that the Great Northern desired to expedite matters so that if the applications should be granted, construction could be undertaken sometime early in 1930.

Concluding Testimony of Southern Pacific

One point in the Southern Pacific argument against the construction of the line, which was not reported in the article concerning the hearing in the *Railway Age* of November 30, was brought out by Paul Shoup, president of the Southern Pacific, when he intimated that his road might not have constructed its through route between Oregon and Nevada via Klamath Falls and Alturas if it had known of the proposed Great Northern-Western Pacific construction. Mr. Shoup continued, enlarging upon this point and other phases of the Southern Pacific position:

In the past five years, with the authorization of the Commission, the Southern Pacific has spent about \$30,000,000 completing the Cascade line and about \$10,000,000 in purchasing and standard gauging the former Nevada-California-Oregon, and in completing a railway from Klamath Falls to Alturas to create a new main line route between California and Nevada, shorter by over 200 miles than its former route through Roseville and over the Sierra Nevada mountains. It will be a long time before the Southern Pacific can earn an adequate return on this investment from local traffic to be developed and from economies resulting through short routing of freight between Oregon and Nevada. This Southern Pacific investment should not now be imperiled before it can pay its way, by the proposed construction which is adjacent to it for nearly half its length between Klamath Falls and Alturas and which for the remainder of the distance extends in the same general direction, being designed to handle traffic that would otherwise pass over the Alturas route or the Southern Pacific route from Klamath Falls to the Sacramento Valley.

The applicants claim that the proposed line will form a new through route for interchange of traffic between the Great Northern and the Western Pacific and will benefit them by revenue from traffic thus interchanged. Such traffic and the revenue from it will be largely diverted from existing railroads as it could just as well move over the rails of the Southern Pacific and its connections. From the standpoint of the public it matters little over what rails traffic may move so long as

rail service is adequate, efficient and economical. Earnings credited to one railroad from traffic diverted from another entail offsetting losses to the carrier from which it is taken and there is no advantage in transportation from the viewpoint of the public. On the contrary, where an additional route is created to handle traffic that can be moved over existing routes, there is an added transportation expense which the public must bear because of the necessity of maintaining and operating and paying interest on an investment that is not necessary.

If the Great Northern and the Western Pacific move the traffic they expect at the expense of the Southern Pacific, the annual loss to the Southern Pacific will amount to more than \$3,000,000 in gross revenue and the Southern Pacific's ability to serve the public efficiently and economically will be correspondingly impaired. Despite additional revenues to the Great Northern and the Western Pacific, transportation costs for railways as a whole will be increased without compensating public benefit.

This investment has greatly improved railway facilities in Southern Oregon and Northern California. The new Cascade route has given the public faster time for both freight and passenger trains and cheaper transportation cost, and the new Alturas line produces an important added facility. Yet from the Southern Pacific's standpoint its return from these investments is meager and they cannot be made self-supporting without the aid of additional traffic. The Southern Pacific has a right to protection of its investment and a reasonable chance to realize upon it without parallel competing construction following closely after completion of these improvements.

The Southern Pacific's existing railroads serving Oregon and Northern California have a hard time earning a return upon investment. Keen competition by water has kept down rates to a subnormal basis. On the Southern Pacific's Oregon lines, for example, the net operating income for 1928 amounted to only three-fourths of one percent upon its property investment in that state, and in 1927 there was an operating deficit.

Southern Pacific lines now unproductive as to net earnings, have an ample capacity for handling a much greater traffic and their capacity should be utilized before additional parallel lines are built. The truth of this statement is apparent when it is remembered that the Siskiyou Line, although not worked to its capacity, was supplemented by the Cascade Line in 1928, and that a third route is now available via Alturas.

The claim has been made that the new construction will be advantageous on account of competition. While the Southern Pacific owns the only through rail lines between California and Oregon, the public has the advantage of very effective competition through coastwise steamship lines which now carry the bulk of the traffic for which they compete. There is also local and through highway competition.

The statement has been made by the Western Pacific that the new construction is desired as a feeder to improve revenues of its main line. The gross and net revenues of the Western Pacific, as well as those of the Great Northern, have increased in greater ratio than have those of the Southern Pacific and there is no need for building the new line to divert revenues from the Southern Pacific to the applicants. The Southern Pacific has spent over \$200,000,000 in territory west of the Rocky Mountains in the last five years for additions, betterments, equipment and construction to improve the facilities it offers to the public. It is in the public interest that such expenditures shall continue so that the growing needs of the Pacific Coast shall be adequately served, but this will be impossible if the small return now received on new capital is diminished through traffic diversions incident to unnecessary duplicate construction.

The bridge arrangement entered into by the Southern Pacific with the Western Pacific has been pleaded by the Western



A Group of Southern Pacific Officers at the Hearing

Those in the picture are (left to right) H. A. Hinshaw, general freight traffic manager; J. T. Saunders, vice-president in charge of freight traffic; D. J. McGanney, assistant to the vice-president in charge of traffic, and H. C. Hallmark, assistant general freight traffic manager.

Pacific as one reason for building the new line. This agreement was accepted by Western Pacific in lieu of the establishment of certain through rates, with the understanding that at the expiration of the 10-year contract such rates might be put in. As the opening of the Southern Pacific's Alturas line caused the routing of considerable traffic that way, because of its shorter distance, such traffic could not pass over the Western Pacific from Chico or Marysville to Weso and the Southern Pacific intended offering the Western Pacific the privilege of through rates over its Alturas line via the Flanigan gateway to and from a territory much greater than Western Pacific will gain access to from the proposed construction. Such traffic as might be gained by the Western Pacific under these rates would pass over a route shorter than would be provided by the proposed line.

The Southern Pacific's position is that building of the 200-mile line in northeastern California does not (as is sometimes erroneously claimed) bring another railroad into the distributing and producing section of California or to the San Francisco Bay District. It merely provides a route for traffic between the Great Northern and the Western Pacific no better, and generally inferior to that which would be provided between those two systems by the available lines of the Southern Pacific. There will be no more separate railroads in California valleys than there are today. Parallels drawn at the hearing with respect to the development of Southern California are therefore beside the mark. There are now exactly the same number of transcontinental lines in Central California as in Southern California and this parity will exist whether or not the proposed construction is authorized.

Every rate or other advantage that can be gained by joining the Great Northern and Western Pacific through the proposed construction may be realized by the existing line of the Southern Pacific and its connections. The Great Northern connection with the Southern Pacific at Chemult provides a route shorter and better than the proposed construction. Equally satisfactory rates can be made via that gateway and cars can be as freely interchanged. Great Northern and Southern Pacific can co-operate with respect to passenger train service and through cars can be operated if justified, quite as well as though duplicate passenger train service is maintained over the proposed construction. Such service is not now available, the Great Northern not operating passenger trains over its line from Klamath Falls north although Southern Pacific has excellent service through that city.

The question of car supply is one mentioned by the applicants. The estimated cost of the new line does not include anything for additional freight cars, claim being made that applicants will furnish such equipment from their available supply. It is assumed that the Great Northern and Western Pacific, like the Southern Pacific, have ample equipment used for their current traffic. Both Western Pacific and Southern Pacific have contracts with the Pacific Fruit Express Company so that the refrigerator car supply of both companies in California is identical. The Pacific Fruit Express Company is the largest refrigerator car company in the United States, owning thirty percent of the entire fruit refrigerator equipment. During the peak season it makes arrangements with other refrigerator car owners to supplement its supply as needed and it is difficult to see how this service could be improved upon.

The Great Northern on the other hand owns only one-sixth as many cars as the Pacific Fruit Express, these cars being operated by a concern having common officers with another refrigerator car line whose cars are owned by railroads in the southeastern part of the United States and which are primarily used for the traffic of that section. The Pacific Fruit Express Company has made every effort to increase its equipment to meet production on the Pacific Coast. Twenty years ago it owned only 6,000 cars whereas it now owns over 40,000, having doubled its ownership in the last seven years.

The claim has been made that the proposed line will open new markets to producers on the Great Northern and the Western Pacific. The Southern Pacific contends that this claim is erroneous and that there are no markets anywhere in the United States that cannot be as well reached by Southern Pacific lines and its connections. By means of through rates which can be arranged to foster traffic development, the Southern Pacific stands ready to do everything possible to promote the interchange of traffic between California, Oregon and points reached by the Great Northern or by its other connections.

H. C. Hallmark, assistant general freight traffic manager of the Southern Pacific, declared that the tonnage which it is hoped to develop in California for the new line is largely a "mirage." The Southern Pacific, he said, is faced with severe competition by water, adding that:

The water route, either intercoastal or coastwise, provides an advantage for the shipper. Of the total traffic originating in the San Francisco bay area, which includes all of Central California, and the traffic originating in North Pacific areas, Portland and Puget Sound, 91.3 percent is carried between those sections by water. Such bulk commodities as lumber and other forest products, including paper, are carried southbound for all California ports by water, and all petroleum products go north by water. Nearly all the grain and feed, flour, canned goods and potatoes come south by water, while the bulk of the citrus fruit shipments go north by boat. Fifty percent of the furniture movement is by water.

This severe competition, which the proposed line cannot hope to meet, offers a situation unequaled elsewhere in the United States. The result is that the lowest rates in the United States are found in effect between California and Portland and Puget Sound. It is the policy of the Southern Pacific to establish, wherever possible, rates that will make for the greatest interchange of traffic with all carriers, working with each other on a reciprocal basis.

F. S. McGinnis, after tracing the development of improved passenger service on the Pacific Coast lines of the Southern Pacific, called attention to the fact that



Great Northern Officers at San Francisco Hearing

Among those in the picture are (left to right), seated—W. P. Kenney, vice-president and director of traffic, and Ralph Budd, president; standing—F. G. Dorety, general counsel, and (at right) C. O. Jenks, vice-president in charge of operation.

with the completion of the Suisun Bay bridge, passenger train schedules will be reduced from 30 to 60 minutes. He further stated that:

Dining cars are operated in all through trains, even though such operations are conducted at a loss. We stand ready to add any trains that may be required in the future.

In addition to the through service given by the Southern Pacific, between California points, Klamath Falls, Portland and the Northwest, coastwise steamers, auto service and airplane service are also operated in active competition with us. In view of these conditions any substantial diversion of the passenger business from our lines upon which the public necessarily relies would be a serious thing and should be avoided.

Through fares and ticketing arrangements are in effect between the Southern Pacific and connecting railroads at Portland and during 1928 there were 166,024 passengers interchanged at Portland. Any through passenger traffic which the proposed line might carry would be diverted from the existing Southern Pacific lines. Of the total population located on the lines of the Western Pacific and its subsidiary companies, 98.99 per cent is located in cities or towns now served by the Southern Pacific.

The so called Shasta arbitrary represents the Southern Pacific revenue for the haul between California points and Portland on through transcontinental tickets. The applicants have stated that they propose to apply short line fares over this route on one way and all round trip tickets, giving passengers the benefit of traveling by way of Portland or Seattle without additional charge en route between California and transcontinental points. The Southern Pacific is willing to make this adjustment, even though the passenger revenues of certain western carriers will be reduced by \$1,100,000. In my judgment, the applicants cannot make a success of the proposed passenger service.

J. T. Saunders, vice president in charge of freight traffic of the Southern Pacific, explained that company's policy with respect to joint rates as follows:

The Southern Pacific has followed the policy of establishing through joint rates with its connections in order that the territory served by its lines might have the widest possible distribution facilities. Such a practice, which we have termed an "open door" policy eliminates the necessity for connecting lines to extend their rails into territory served by the Southern Pacific.

With the construction of the Klamath Falls-Alturas line, Oregon traffic originated by the Southern Pacific has substantially all been routed via those lines and not via Dunsmuir, resulting in diversion of the bridge traffic from the Western Pacific. It has been decided to establish through rates in connection with the Western Pacific at the time of diverting the traffic from the Dunsmuir route to the Alturas route.

The Southern Pacific has not, up to this time, joined the Western Pacific in joint rates on traffic between points on the Western Pacific in California and points on the Southern Pacific and its connections in the Northwest. We have felt that the revenue accruing to the Southern Pacific to Portland on this traffic is so low that it has not justified dividing it with another line. When these proposed adjustments have been determined we are willing to establish these rates in connection with the Western Pacific so that shippers on the rails of that line and subsidiaries in California may have the benefit of the same through rates from common or opposite points on the Southern Pacific in California. The proposals made are on the condition that the lines proposed are not built.

Southern Pacific witnesses refuted the Great Northern estimates of the new business which would be developed in the territory to be served. Clarence E. Day, an engineer on the staff of the vice-president of the Southern Pacific, sought to show by means of more than a dozen exhibits that all estimates of operating costs by the applicant roads are too low and that the figures representing these costs should be increased by 90 per cent. D. J. McGanney, assistant to the vice-president in charge of freight traffic of the Southern Pacific, asserted that the roads would develop only \$129,000 of business in the new territory, as opposed to their estimate of \$1,685,000.

To illustrate the effect of the proposed construction on the Union Pacific, F. W. Robinson, vice-president in charge of traffic of that road, stated that it might lose

as much as 100 per cent of its traffic between Utah and the Northwest. The effect of the line would be detrimental, not only to the Union Pacific, but to the Southern Pacific at Ogden, he said. Thirty-two per cent of the gross revenue of the Union Pacific is derived from interchange with the Southern Pacific at Ogden and a diversion of traffic would result in a loss to both roads, he continued. The coal and pig iron movement was stated to make up the larger portion of the traffic involved in the movement between Utah and the Northwest.

Rebuttal Testimony of Applicant Roads

The presentation of rebuttal testimony by the Great Northern and Western Pacific began on November 27, with H. M. Adams, president of the Western Pacific, as a witness. Both Mr. Adams and W. P. Kenney, vice-president and director of traffic of the Great Northern, declined the offer of the Southern Pacific to open the three gateways and establish joint through rates, based upon the denial of the applications by the Commission.

"Without reflecting on the good faith of the Southern Pacific," said Mr. Adams, "the situation would not be a practical one. They cannot be expected to be interested in affording efficient or improved service to other railroads in competition with themselves. On the other hand if the Great Northern has access to California through a friendly connection, without any substantial adverse interest, it would be the practical equivalent of coming into California over its own rails, and the road would be in a position to give a corresponding service to the public. Under the proposals of the Southern Pacific, the Great Northern would be under such handicaps in securing traffic in competition with the former road that it would not be able to secure any great volume of business."

"The adverse interests of the Great Northern and the Western Pacific would not affect the character of the connection as a friendly connection, because the amount of traffic which the Great Northern can reasonably expect to obtain from Northern California to move over its line to points beyond the Twin Cities would be so small in comparison with the volume of traffic in which the interests of the two companies would be identical as not to affect the friendly relationship."

Mr. Kenney, when asked by counsel if the Great Northern would not expect the Southern Pacific to co-operate actively with it in securing the routing of traffic via the new gateways, replied that the contract between the Union Pacific and the Southern Pacific would prevent the latter road from taking any active part in working any business through the northern gateways that could go through the Ogden gateway at equal rates.

J. W. Williams, chief engineer of the Western Pacific, and Frederick Mears, assistant chief engineer of the Great Northern, vigorously defended the estimates of the cost of the construction of the proposed line as originally prepared by their respective companies.

Panama Canal Annual Report

WASHINGTON, D. C.

REDUCTION in the rates of tolls via the Panama canal, for which there has been some agitation on the part of ship operators, is strongly opposed by the governor of the Canal, H. Burgess, in the annual report to the Secretary of War for the year ended June 30, 1929. While the canal has gone through another successful year of operation, he says, and has prospects of continued success if it shall continue to

be managed under the same general principles as have been applied during its nearly 15 years of service, Governor Burgess does not believe in the methods of accounting resorted to by so many of those in charge of government activities to show quick paper profits.

"Considering the capital invested and accumulated interest on the investment" he says, "the present total capital liability is such that the canal is not yet earning the annual interest charge at 4 per cent, the current borrowing rate of the Treasury of the United States. For this reason and others, including the necessity of extensive additional expenditures in order to bring the canal to its highest efficiency, it would appear that at present there is no justification for reductions in the rates of tolls."

Although the tolls collected during the year, \$27,127,376, established a new high record for the canal, Governor Burgess points out that on what he calls the "true investment" the commercial earnings are approximately 3 per cent only. Whereas most government officials having anything to do with waterway operation contend that the matter of interest and even some other overhead charges should be totally disregarded, Governor Burgess sets up in his report a table placing the total capital liability represented by the canal at \$538,056,997, which adds to the capital investment of \$386,401,156 the amounts by which the amounts collected failed to equal the annual interest charges.

He also takes the position that the effect of lower tolls on the railroads should be given consideration.

On the subject of tolls and the general financial results of the canal operation the report includes the following:

The United States is obligated to the treatment of vessels of all nations on terms of entire equality and some of the proposals which have been made would, if adopted, be discriminatory. However, there is no obligation against an even-handed reduction or increase in tolls if it should be found advisable from the viewpoint of national economy to make a change.

It is alleged that the canal is earning a handsome monetary return on the investment, and it is pertinent to examine whether this is the case. The form of financial statement in use, which was not devised by the canal administration, is susceptible of misinterpretation. The financial statements have wholly disregarded interest during the construction and development periods, as well as the excess cost of operation over earning for the earlier years, and have considered a division of the construction cost between the so-called commercial and defense investments. This division gives the "commercial capital investment" at \$273,273,818.51 and the "national defense capital investment" at \$113,127,337.73, or a total of \$386,401,156.26.

This form of financial statement for the purpose of determining the commercial return from the investment is misleading, in that it disregards almost half of the investment. Taking the so-called commercial capital investment as mentioned above, there is, of course, a satisfactory rate of interest being earned, but on the true investment the commercial earnings are approximately 3 per cent only. At the current borrowing rate for the Treasury, which is about 4 per cent, the canal is not yet earning the annual interest charge.

It is to be noted that the present toll rates were fixed by the Panama Canal act of August 24, 1912, and the President's proclamation of November 13 of that year. The rates have not been increased to conform to the reduced purchasing power of the dollar whereas the costs of operation and maintenance and (presumably) ocean freight rates have increased in conformity to the reduced dollar. It may therefore be stated that in effect the tolls have actually been reduced by about 40 per cent since the canal was opened to commerce. It may be here stated, as of interest in this connection, that the tolls collected at the Suez Canal, which were revised downward on January 1, 1929, exceed even now those of the Panama Canal approximately 33 per cent for loaded vessels and approximately 21 per cent for vessels in ballast, in spite of the fact that the older canal cost less than one-third the sum invested in the American canal.

The agitation for lower rates has come entirely from

United States operators of vessels and representations have been made that lower tolls would be an aid to American shipping. For the calendar year 1928 foreign ships paid 54.8 per cent of the tolls collected by the Panama Canal, non-coastwise United States ships 12.6 per cent, and intercoastal vessels of the United States 32.6 per cent. A lowering of the canal tolls below the value of the service rendered should be considered in the nature of a subsidy to shipping, and each million dollars of tolls reduction would represent a subsidy of \$548,000 to foreign shipping, of \$326,000 to United States shipping not in competition with foreign shipping, and of only \$126,000 to those ships of the United States which are in competition with foreign flags. It is seen that as far as the United States shipping is concerned the greatest reduction would be to vessels engaged in the intercoastal trade of the United States. These vessels are protected against competition by foreign lines and their competition is with the railroads of the United States. As a matter of national policy the effect of lower canal tolls on the railroads should be given careful consideration.

Commercial traffic through the canal in the fiscal year 1929 established new high records in the amount of tolls collected, tons of cargo carried (30,663,006 long tons), and tonnage of vessels (with the exception of United States net). The increase in cargo is said to have been directly attributable to a heavy gain in the movement from Atlantic to Pacific. A slight decline occurred in the United States intercoastal traffic and in the trade between Europe and North America. A loss of some 570,000 tons occurred in the intercoastal movement from the Pacific to the Atlantic, due primarily to curtailment in shipments of mineral oils and lumber, but heavy shipments of iron and steel goods were largely instrumental in the expansion of the trade in the opposite direction. The total for this route was 10,119,028 tons, as compared with 10,067,392 in 1927 and 10,560,505 in 1926. The tonnage from Atlantic to Pacific was 3,022,960 and that from the Pacific to the Atlantic was 7,096,068.

The average number of lockages per day is now about 17, the Panama canal net tonnage of transiting ships about 30,000,000 tons per year. It seems a fairly safe prediction, the report says, to estimate the growth of traffic as not over 10,000,000 Panama canal net tons per decade, and to estimate that a third set of locks will be required in from 30 to 35 years.

The net income from tolls and other miscellaneous receipts known as "canal revenues" was \$17,729,775.01 for the fiscal year 1929, as compared with \$18,224,844.86 for the fiscal year 1928, \$15,611,093.80 for 1927, \$15,151,668.06 for 1926, and \$13,465,924.72 for 1925.

The net profits of auxiliary business operations conducted directly by the Panama Canal, the most important of which are the mechanical shops, material storehouses, and fuel-oil plants, total \$737,850.26. The net profits of operations of the Panama railroad, exclusive of the Panama Railroad Steamship Line, were \$1,693,873.17.

Total net revenue for the year 1929 from all sources, exclusive of the Panama Railroad Steamship Line, was \$20,161,498.44, as compared with \$20,561,847.90 in 1928, \$18,131,819.97 in 1927, \$17,340,865.68 in 1926, and \$15,757,751.70 in 1925.

The aggregate net revenue from all sources (exclusive of the Panama Railroad Steamship Line) was less by \$400,349.46 in 1929 than in 1928, a decrease of 1.95 per cent (\$20,161,498.44 compared with \$20,561,847.90). The decrease occurred in the net income in the account of canal operations and business operations (\$10,287,109.33 for 1929 compared with \$10,835,925.75 in 1928) in the amount of \$548,816.42, which was due principally to increased canal expenses. This decrease was offset in part by greater earnings of the Panama Railroad activities.

Railway Budgets for 1930 Total \$1,050,000,000

*Capital program in addition to \$4,500,000,000
in other disbursements*

WASHINGTON, D. C.

THE budgets of capital expenditures for 1930 for 164 Class I railways in the United States aggregate \$1,050,000,000 including \$370,000,000 for equipment and \$680,000,000 for roadway and structures, according to a statement by R. H. Aishton, chairman of the executive committee of the Association of Railway Executives, on December 5 at the National Business Survey Conference called by the Chamber of Commerce of the United States at the request of President Hoover in connection with his plan of business stabilization. The total figure was arrived at after a careful survey by each road of its capital program for next year, made within the past ten days, or since the President's conference with the railway executives and their subsequent meeting in Chicago. It was estimated that the expenditures under this program for the first six months of 1930 will be \$490,000,000, or an increase of \$140,000,000 as compared with the corresponding expenditures in the first half of 1929.

Mr. Aishton's statement was in the form of a reply to two questions addressed by the officers of the national chamber to the representatives of various business groups invited to the conference.

In addition to the capital program he also pointed out that the railways are expending this year nearly \$4,500,000,000 in purchases of supplies and wages and expect to equal it in 1930. He also took occasion to point out that the railways have their own serious problems although he said this was not the time to discuss them, and he emphasized the necessity for adequate railway credit.

Question No. 1

The present situation in the industry compared with the same period last year.

The situation as of October 1st showed a greater authorized program of railway improvements and capital expenditures under way at that time than in any similar period for the past five years. Briefly, it called for an expenditure within the next few months of \$674,000,000, or \$272,000,000 more than on the corresponding date in 1928.

As to the policy regarding this program, the railways record themselves as follows:

Not believing that there is anything in existing conditions to require it, the executives have no purpose whatever to reduce or abandon any part of this program.

Question No. 2

What are the prospects for the next six months compared with the corresponding period of last year?

The attitude of the railways may be expressed in these words:

"They are proceeding with confidence in the future business prosperity of the country and in reliance upon the full co-operation of industry in all its branches, equally interested. Under these circumstances, it is their hope

and expectation to proceed on at least a normal basis in their future capital and maintenance expenditures. A movement to increase them, however, has been started and is being actively and intelligently pressed forward."

In accord with this expression, in the past ten days every Class I railroad in the United States, by that meaning roads with earnings of one million dollars per year, numbering 164, and representing 241,600 miles of line, or 91 per cent of all rail mileage in the country, has carefully reviewed its program and the aggregate of their budgets for the year 1930 is as follows:

Equipment	\$ 370,000,000
Roadway and Structures	680,000,000
<hr/>	
Total	\$ 1,050,000,000
It is estimated that the First Quarter will absorb..	\$ 212,000,000
Second Quarter	278,000,000
<hr/>	
First Six Months	\$ 490,000,000
Total expenditures for the First Six Months in 1929 were	350,000,000
<hr/>	
Showing an increase of	\$ 140,000,000

The Pullman Company plans to spend \$11,900,000 and the Railway Express Agency, Inc., \$6,000,000 in capital improvements in 1930.

So much for capital expenditures, but this is only a part of the story. In addition to the capital expenditures outlined above, the railways are expending this year \$1,300,000,000 or more in the purchase of supplies for operation and maintenance, ranging all the way from soap to steel castings, and \$3,000,000,000 in wages to railway employees.

Both these forms of distribution of money, aggregating nearly four and one-half billions of dollars, the railways expect to equal in 1930 and will represent a direct flow of cash into the channels of trade and industry. This distribution is additional to the \$1,050,000,000 that the railways are now planning as their capital program.

It should not be assumed from what I have said that the railroads are not confronted with their own serious problems; but this is not the time nor the occasion to discuss them. I would not fully meet my responsibilities, however, if I did not call your attention to one fact which, of course, is well known to this audience. Availability of money and low rates of interest, while they beneficially affect, do not by any means solve the problem which underlies capital expenditures; for, in order to secure the money for essential purposes, including improvements and betterments, the railroads must have adequate credit. To secure it they must maintain and improve their service, must operate with the strictest economy, with the greatest measure of efficiency and, in addition, must obtain revenues, as compensation for their service, sufficient to meet interest and dividend requirements and to pay their notes when due.

Looking Backward

Fifty Years Ago

The Vicksburg, Shreveport & Pacific [now part of the Illinois Central], extending from Delta, La., opposite Vicksburg, to Monroe, was sold under foreclosure at New Orleans on December 1 for \$60,000.—*Railroad Gazette*, December 5, 1879.

The government auditor, in his first annual report, states that for the 10 months ending October 31, 1879, there were built in the United States 2,900 miles of new railroad, of which a length of over 2,000 miles was west of the Mississippi river. The average new construction for the first ten months of the five previous years amounted to about 1,600 miles.—*Railway Age*, December 4, 1879.

Twenty-Five Years Ago

President Roosevelt, in his message to Congress, read at the opening of the session on December 5, made several references to the railways. He indicated his position as follows:

"The ever-increasing casualty list upon our railroads is a matter of grave public concern and urgently calls for action by the Congress. * * * The passage of a law requiring the adoption of a block signal system has been proposed. I earnestly concur in that recommendation and would also point out to the Congress the urgent need of legislation in the interest of the public safety limiting the hours of labor for railroad employees in train service upon railroads engaged in interstate commerce. * * * The government must in increasing degree supervise and regulate the workings of the railways engaged in interstate commerce. In my judgment the most important legislative act now needed as regards the regulation of corporations is this act to confer on the Interstate Commerce Commission the power to revise rates and regulations, the revised rate to go into effect at once and to stay in effect unless and until the court of review reverses it."—*Railway Age*, December 9, 1904.

Ten Years Ago

J. L. Lancaster, federal manager of the Texas & Pacific, the Gulf, Texas & Western, the International & Great Northern and a number of smaller roads, has been appointed receiver of the Texas & Pacific Railway Company.—*Railway Age*, December 8, 1919.

William B. Storey, federal manager of the Atchison, Topeka & Santa Fe, and the Panhandle & Santa Fe and prior to federal control vice-president of the former road in charge of construction and operation, has been elected president of the Santa Fe, effective January 1.—*Railway Age*, December 10, 1919.

Freight traffic on the railways of the United States has undergone a remarkable revival. Last spring the freight traffic declined to the smallest amount since 1915. In October, 1919, the amount of freight traffic handled was the largest ever handled in any single month in the history of American railroads except August, 1918.—*Railway Age*, December 5, 1919.

Approximately 1,500 switchmen, members of the Brotherhood of Railway Trainmen, left their work in the Kansas City terminal district on Saturday, November 29, and returned again on Monday, December 1. The strike, which was due to dissatisfaction over the present wage scale and alleged failure of the national officers of the brotherhood to take action, practically paralyzed freight shipping in the terminal yard.—*Railway Age*, December 5, 1919.

Some surprise was caused by the President's failure to include a discussion of the railroad question in his message to Congress at the beginning of the regular session on December 2, because it was hoped he would make a more definite announcement regarding the return of the railroads than his rather casual statement of last May that they would be relinquished at the end of the year. The President will defer the message regarding the railways until after receiving a report from Director General Hines.—*Railway Age*, December 8, 1919.

New Books

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Bulletin No. 20, Railway and Locomotive Historical Society, November 1929. Includes "1829—Centenary of Rainhill, the 'Rocket'" and the "Stourbridge Lion"—1929" by John Loye, p. 7-18, "Early tramroads in Great Britain" by G. W. Bishop, p. 19-25, "Baltimore & Ohio R. R. No. 600" by J. Snowden Bell, p. 26-31, "Account of a trip over the Charleston & Hamburg, R. R. soon after its completion in October 1833" (from Phillips' History of transportation in the Eastern cotton belt to 1860), p. 32-35, "The Early English engines that came to America" by Charles E. Fisher, p. 36-43, "The Atlantic City high speed line" by Granville Thomas, p. 44-51, "Pioneer locomotives on the Pacific coast" by T. C. Young, p. 52-54, and other articles on early locomotives, which round out an unusually interesting number. Illustrated. 72 p. Pub. by the Railway and Locomotive Historical Society, Boston Mass., \$1.

Industrial Traffic Organization and Management. Three manuals: No. 1 "A Survey of industry and the traffic field," by L. E. O'Brien; No. 2 "Organization of the Traffic Department" by G. Lloyd Wilson, and No. 3 "Management of the Traffic Department" by G. Lloyd Wilson, 3 vols. Pub. by LaSalle Extension University, Chicago, Ill. \$1 each.

Transportation in North Carolina—A Study of Rate Structure and Rate Adjustment, by Roland B. Eutsler. Chapter headings include: A Summary of the Interstate Rate Structure and Rate Adjustment to North Carolina, Commission Regulation and Rate Making in North Carolina, North Carolina Intrastate and Interstate Rates, The Power to Regulate Intrastate Freight Rates, Summary and Conclusions. 65 p. Publisher not given but probably available from Author, Philadelphia, Pa.

Periodical Articles

Aerial Cableways in Germany, by A. Douglas Cook. "Rapid strides have been made during the past two years in aerial cableway construction in Germany." Detailed description with illustration. *Commerce Reports*, December 2, 1929, p. 566, 584.

Concentration Vs. Co-ordination in Business. "Now is the time when all good men should come to the relief—of their own business enterprises. . . Shall the railroads, already in the thongs of superimposed rates by means of a government agency, combine and consolidate *naturally* that they may give greater service at less cost, or shall they measure their 'improvements' by projected consolidations made in Washington and submit themselves to forces entirely apart from their inherent power to develop themselves?" An editorial comment. *Commercial and Financial Chronicle*, Nov. 30, 1929, p. 3375-3376.

The German Railway System, by C. E. R. Sherrington. "Fortune has brought me into close contact with the German Railway during the last three years, and it is the aim of this paper to give some sidelights on the difficulties which are being faced by Dr. Dorpmüller, the General Direktor of the railway, and his officers, and the means which are being adopted to overcome these difficulties. . . Route mileage in Great Britain amounted to 20,240 miles, whilst that of the German Railway Company totals about 33,000 miles. . ." p. 17. *Journal of the Institute of Transport*, November 1929, p. 17-23.

The Operation and Maintenance of Railway Tracks in Regions of Heavy Snowfall, by F. W. Alexander. The author is Engineer, Maintenance of Way, Canadian Pacific Railway. This paper was presented before the World Engineering Congress, Tokyo. *Engineering Journal*, November 1929, p. 581-588.

What Uncle Sam Got For An Empire, by Agnes C. Laut. What the railroad land grants really comprised and what happened to them. *Nation's Business*, November 1929, p. 49-52, 222-226.

Odds and Ends of Railroading

Biggest Cat?

Members of the Boston & Maine Railroad Trainmen's Association claim that the cat which is their mascot is the biggest domestic feline in the country. He is not only longer and wider than the ordinary cat, they say, but he weighs more, tipping the scales at the respectable figure of 22 lb. 4 oz.

"Talkies" on Train

The talking moving picture continues to open up new possibilities for itself. Recently, the first "talkie" was shown on a moving railway train. A diner on the Union Pacific was specially equipped for the performance with portable projection and sound apparatus, and the films were shown and heard while the train was proceeding from Los Angeles to Ogden.

"Lefty" Grove a Railroader

Although the 1929 world series has passed into history, it may be of interest to railway baseball fans to know that Robert Moses Grove, who stood the Cubs on their ears with his left-handed shots, and was largely responsible for the victory of the Philadelphia Athletics, is an ex-railroader. In 1920 he was a tender repairman helper in the shops of the Baltimore & Ohio at Cumberland, Md.

Believe It Or Not

Hughey Duignan, Trenton Division signal maintainer for the Pennsylvania, for some time past had noticed that on inspection of his batteries at Byram the water seemed to be low in the jars, more so than at anywhere else on his section. This went on for a few weeks and then Hughey became suspicious. He resolved to give the Byram jars more repeated inspections. The other day while checking up he uncovered one of the jars and found a copperhead snake coolly "wetting his whistle" on the sulphuric acid solution within. Any chemist will tell you that sulphuric acid is not quite the thing to slake away that parched condition of the throaty mucous membrane. It seemed to have no effect, however, on the snakes of Byram. Hughey killed the copperhead with a club.

A Baseball Hole-in-One

LAFAYETTE, La.

To THE EDITOR:

It is a notable, but not infrequent, occurrence when a golfer makes a hole in one. However, for a baseball player to perform this feat is indeed a rare occurrence. Nonetheless, it happened. In the course of a practise game played by one of the teams in the Southern Pacific baseball league at Lafayette, La., one of the players hit a line drive through short-stop, and the ball rolled into the outfield. The center fielder started after it, but suddenly the ball disappeared. A search was made and the ball was found resting securely in a golf "cup." The game was being played on an abandoned golf course.

R. W. WILLIAMSON.

Water Service and History

It would hardly be thought that a knowledge of history would aid a railroad water service man, yet such proved to be the case recently on the west end of the Texas & Pacific. Water is a valuable thing on that end of the railroad, and some was found necessary at one of the stations. Unfortunately, there was, apparently, no available supply. It happened, however, that the water service man knew something of the history of the country. He remembered that old-timers had told him a peculiar habit of the Indians. Whenever they were forced to leave a camp site by the invasion of the white men, the old-timers said that the Indians had always spent days and weeks concealing the water supply after it had been cleared of the debris by piling

in it boulders and mesquite. With this in mind, a search was made of the surrounding country and, sure enough, one of these old, dammed-up springs was discovered which provided an ample water supply after it had been cleared of the debris piled in it 50 years ago by the departing Indians.

Railway Travel A Cure for Insomnia

Insomnia, I must confess, has never bothered me, but I have a friend whose sufferings from sleeplessness have reached such a pitch that the only place he is sure of sleeping in is the best sort of express train. So, whenever he can't bear it any longer, he books a first-class sleeper to Newcastle, packs a small bag, and dashes to King's Cross in the sweet assurance of getting some rest. He leaves on the 10:50 p. m., spends the next day in Newcastle doing nothing in particular, and has a second night's sleep on the way back. Then he is able to face another week of restlessness. An expensive opiate, but he seems to find it worth the money, and when I saw him off at King's Cross the other night, I almost envied him his extreme delight in his comfortable little bunk.—Aberdeen (Scotland) Evening Express.

The Retort Courteous

On a certain railway there was a trainmaster who, while he was undeniably a good man, was notorious for his inclination to brag about his accomplishments. As it happened, there was on his district a certain run where the crew lay over at the end of the run for something like ten hours. By efficient operation, and careful planning on the part of the operating officers, it was eventually made possible to change this into a turn-around run, so that the crews and engines had only a negligible lay-over at the place that was previously the end of the run. The trainmaster previously mentioned was highly elated by what he considered his own accomplishment and, when the vice-president in charge of operation arrived to see how the new plan was working out, the trainmaster rushed over to his car in high excitement. The vice-president, however, knew the trainmaster's foibles and was prepared for him, as is indicated by the following conversation:

Trainmaster: "Boss, I made the best record that's ever been made on this railroad, I want to tell you. This morning, a northbound crew came in here and I had them turned around and going south again in five minutes!"

Vice-President: "What the h— was the delay?"

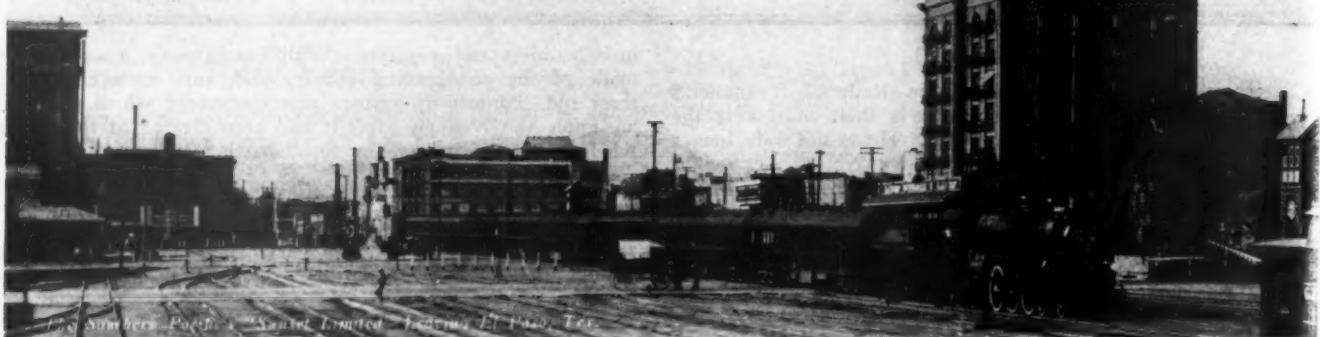
A List of Pioneers

Following is a stockholders' list of the Southern Pacific for 1861, the year in which the nucleus was formed. The names it includes are those of men made famous as pioneers of western progress. The list follows:

Leland Stanford	150 shares
C. P. Huntington	150 "
Mark Hopkins	150 "
Theodore Judah	150 "
Charles Crocker	150 "
Glidden	125 "
Williams	320 "
Charles Lombard	320 "
Orville Lombard	320 "
Samuel Hooper	50 "
Benjamine Reid	50 "
Samuel Shaw	50 "
R. O. Ives	25 "
Edwin Crocker	10 "
Samuel Brannan	200 "

Who, at the time of its incorporation 68 years ago, would have thought that this company's stockholders' list would eventually contain not 15 but 58,000 names?—Wall Street Journal.

NEWS of the WEEK



THE NEW ENGLAND RAILROAD CLUB will hold its next meeting at the Copley-Plaza Hotel, Boston, on Tuesday evening, December 10. This will be the annual Canadian night, and the speaker is to be E. W. Beatty, president of the Canadian Pacific.

RADIO PROGRAMS and reports are now available to passengers between New York and Chicago on the new through service of the Canadian National and Lehigh Valley railroads. The chair car is fitted with a receiving set which is attended by a uniformed operator.

THE CANADIAN RAILWAY CLUB will hold its next meeting on December 9 at the Windsor Hotel, Montreal. There will be a paper by Arthur H. McMullen of the Bureau of Explosives, with stereopticon illustrations of his work as an inspector.

AT THE PACIFIC COAST CONFERENCE of the Safety Section, A. R. A., which will be held at the Hotel Bellevue, San Francisco, on December 12, Will J. French, director of the department of Industrial Relations of the State of California, and chairman of the California Industrial Accident Commission, will speak on Efficiency in Safety.

THE ASSOCIATION of Bridge and Building Mechanics on November 26 filed a suit in the federal district court at San Francisco, Cal., asking that the United Brotherhood of Maintenance of Way Employees and Railway Shopmen be enjoined from acting as its representative in negotiations with the Southern Pacific. The plea states that the association has a membership of 1,250 and that the brotherhood has 300 members.

THE ST. LOUIS-SAN FRANCISCO EMPLOYEES' CLUB at their annual meeting at St. Louis, Mo., on November 25 and 26, chose the following officers: President, W. L. Huggins, Jr., director of publicity and personnel; vice-president, George Olsen, a dispatcher at Hugo, Okla., and secretary-treasurer, Martha C. Moore, associate editor of the Frisco Employees' Magazine.

THE RAILWAY AND LOCOMOTIVE HISTORICAL SOCIETY (Harvard Business

School, Boston) has issued its bulletin No. 20, a pamphlet of 72 pages, containing notes on the centenary of the Rainhill locomotive trials in England, and other centenary matter, and many interesting letters. There is an account of the trip of a passenger over the Charleston & Hamburg in 1833, this road at that time being the longest railroad in the country. It appears that within the ten years following the arrival of the Stourbridge Lion, no less than 116 locomotives were brought to America from England, and the leading article in this bulletin gives the names, dates, names of roads and other data concerning these engines.

Freight Damage Payments Reduced

Freight claims paid by the railroads during the first six months in 1929 growing out of loss and damage to freight shipments were the lowest for any corresponding period in recent years, according to reports compiled by the Freight Claim Division of the American Railway Association. Total payments were \$18,510,038, compared with \$18,834,897 for the first six months in 1928 and \$19,820,223 for the same period in 1927.

Harriman Medals Awarded

The Harriman memorial medals, given annually in recognition of progress in the promotion of safety on railroads, are to be presented in New York within a few weeks, and the names of the roads receiving awards for the year 1928, have been published, as follows: Group A, Gold medal, Union Pacific; Group B, Silver medal, Duluth, Missabe & Northern; Group C, Bronze medal, Texas Mexican.

Certificates of honorable mention were awarded as follows: Group A, Chesapeake & Ohio; Group B, Gulf, Mobile & Northern; Group C, Evansville, Indianapolis & Terre Haute.

Group A includes railroads operating ten million or more locomotive miles in 1928; Group B from one million to ten million locomotive miles; and Group C, those operating less than one million.

The committee finds that many roads show very encouraging improvement in

safety during the past year. Of the 159 competing railroads, in the three groups, 121 operated throughout the entire year of 1928 without a single passenger fatality. These roads reported more than ten billion passenger miles.

Tests of Running Boards Proposed

John L. Rogers, special examiner of the Interstate Commerce Commission, has submitted a proposed report on the petition filed by the train-service brotherhoods asking that the commission modify its order of March 13, 1911, which provided that running boards on box and other house cars shall be made of wood, so as to permit the use of metal running boards. The report says that sufficient good cause has not been shown to justify a general modification of the order but that it should be modified to a limited extent so as to permit for test purposes the use of cars equipped with running boards made of material other than wood. Mr. Rogers recommends that the record in the case be held open to afford the railroads and brotherhoods an opportunity to submit evidence as to the results of the tests provided for.

Canadian Railways Minister Made Minister of Finance

Hon. Charles A. Dunning, for three years Minister of Railways and Canals at Ottawa, was last week appointed by Premier Mackenzie King to the position of Minister of Finance, the highest position in the Canadian Cabinet next to that of the Premiership. Mr. Dunning is the youngest man ever to hold this post and also the first Western man to be appointed to it, as he was also the first Western man to be Minister of Railways. He came to Canada an immigrant boy and settled in Saskatchewan where for his first years was engaged in farming, and later had much to do with the organization of the co-operative grain handling business.

It is now slightly more than thirteen years since Mr. Dunning entered public life. In October 1916, at the age of thirty-one, he became Provincial Treasurer of Saskatchewan; the next year, Minister

of Railways, and the following year, Minister of Agriculture for that province. When Premier Martin retired he was called upon to form a Cabinet, and in 1922 became Premier, Provincial Treasurer and Minister of Railways. In February, 1926, he was appointed Minister of Railways in the federal Cabinet and has held that position up to today. He is the youngest man to assume the position of Minister of Finance, his age now being 44 years.

\$55,000,000 Proposed for Waterways

The Chief of Engineers has submitted to the War Department in his annual report a statement of the amounts that can be profitably expended during the fiscal year ending June 30, 1931, for improvement and maintenance of river and harbor works, making a total of \$55,000,000, and the President has recommended appropriations in this amount. The total is made up of \$34,197,460 for improvement work and \$20,802,540 for maintenance. It includes \$7,230,400 for intracoastal canals and other internal waterways in addition to \$20,812,760 for the Mississippi river system. Of the latter figure \$17,734,360 is for improvement and \$3,078,400 is for maintenance.

Expenditures in the fiscal year 1929 included \$32,622,829 for improvement and \$15,148,303 for maintenance and there was an unexpended balance of moneys allotted to various waterway projects at the end of the year amounting to \$76,599.037.

The total commerce reported for the year 1928 is given as 1,118,183,502 tons, of which 81,437,633 tons is ascribed to the Mississippi river system.

Eight Passengers Killed at Onley, Va.

A derailment at Onley, Va., on the Norfolk division of the Pennsylvania, about 1 a. m. on December 2, caused the death of eight passengers and a brakeman, and about 40 passengers were injured. The train was the regular northbound passenger, 10 cars, carrying nearly 500 passengers, and the cause of the derailment is said to have been a broken rail. The train was moving at about 45 miles an hour and the locomotive and first two cars passed over the defective track in safety. K. F. Cheno-weth, chief boatswain's mate of the battleship Oklahoma, is credited with notable efficiency in quieting the panic and aiding the injured, in one of the two coaches in which were most of the fatalities. Members of local fire departments were on the scene within 15 minutes and assisted in rescue work. Most of the passengers were people from Norfolk and Portsmouth, taking advantage of week-end excursion rates to New York City. R. B. Cooke, general freight and passenger agent of the Pennsylvania, at Norfolk, said that this was the first time in 45 years that a passenger had been killed in a train accident on the New York, Philadelphia & Norfolk (the line south of Delmar, Del., now incorporated in the Pennsylvania).

New York Plans 214 Crossing Eliminations for 1930

The Public Service Commission of New York, acting under the provisions of the Grade Crossing Elimination Act, has recently announced the existing grade crossings which will be considered for elimination during 1930. The program, made up of crossings suggested for consideration by the state Department of Public Works, railroads and municipalities, includes 152 new projects involving approximately 299 crossings, to be removed at an estimated cost of \$43,182,050. Sixty-two additional projects, originally included in the 1929 program, but upon which no action has yet been taken, will also be carried over into the 1930 program. These projects involve an estimated expenditure of \$19,234,000.

Of the total estimated cost of \$43,182,050 for the new work, 50 per cent, or approximately \$21,591,000 will be paid by the railroads, 49 per cent, or about \$21,159,229 by the state and one per cent (\$431,821) by the counties in which the various crossings are located.

The most important projects included for consideration in the 1930 program are the elimination of all crossings in Albany south of Broadway, all crossings in Troy, all New York Central main line crossings in Herkimer and Batavia, all Nickel Plate and Pennsylvania crossings in Dunkirk, all railroad crossings of Central avenue in Lancaster, all remaining crossings in North Tonawanda, all Delaware & Hudson crossings in Whitehall and all remaining crossings of the New York Central's Harlem division in Westchester county, with the exception of the one at Katonah. Certain crossings suggested for elimination have been omitted from the program because they require extraneous work or further study.

The new projects and those carried over from 1929, listed by railroads, together with the 50 per cent cost to the railroads, are shown in the following table:

GRADE CROSSING ELIMINATION PROJECTS,
NEW YORK STATE, 1930

Railroad	New Projects Proj- ects	Carried Over	Railroad Share of Cost
Boston & Albany...	2	..	\$ 162,500
Boston & Maine...	5	1	377,750
Buffalo & Erie...	1	1	146,650
Buffalo, Rochester & Pittsburgh	4	2	868,000
Delaware & Hudson	9	2	2,908,500
Delaware, Lackawanna & Western	11	5	1,378,200
Erie	16	9	2,977,500
International	3	3	450,000
Lehigh Valley	13	4	1,432,750
Long Island	11	5	792,650
New York Central	48	17	13,116,450
New York, Chicago & St. Louis	2	1	666,675
New York, New Haven & Hartford	1	3	326,000
New York, Ontario & Western	4	2	502,500
Pennsylvania	13	2	1,479,125
Rochester, Lockport & Buffalo	..	1	25,000
Rutland	7	3	282,750
Troy Union	1	..	3,175,000
Ulster & Delaware	1	1	140,000

Crowley Addresses Boston Commerce Chamber

P. E. Crowley, president of the New York Central, addressed the Boston

(Mass.) Chamber of Commerce on December 5. In this address he said that the New York Central is proud of the prestige of the Boston & Albany as a historic element in the life of New England, and feels that the road should be kept free and independent; to take the road with its record of service and its traditions and thrust it into a common merger with the other New England railroads would be a mistake.

Although technically leased to the New York Central, said Mr. Crowley in effect, the Boston & Albany is in name and in management really an independent railroad. It is operated from Boston. The officers are New Englanders and will continue to make their headquarters at Boston. They are at all times available for consultation and are empowered to give quick and authoritative decisions. The New York Central considers itself a friendly neighbor to the business interests of Boston and the rest of New England, and it means to have a policy of management in Boston which will accomplish real, practical co-operation with shippers and other patrons in that region.

Mr. Crowley reviewed what the New York Central has done in Massachusetts since July 1, 1900, when the road "entered into full partnership with New England" by leasing the Boston & Albany. That road had a long and honorable record, and at that date had a high reputation throughout the country; and the maintenance and even enhancement of that reputation has been the constant aim of the lessee. In this quarter century, the investment in the Boston & Albany has risen from twenty-nine millions to eighty-seven million dollars. The road has been equipped with the latest and best cars and locomotives and the policy of building appropriate and adequate stations has been continued. Right now, plans are being made (in conjunction with the New Haven road) for the expenditure of \$1,500,000 to modernize the South Station in Boston. The train shed is to be taken down. In the year 1900, through trains between Boston and Albany numbered four each way, daily, with a usual total of 16 sleeping cars; today, there are eight trains in each direction, with frequent additional sections, and the total number of sleeping cars daily is from 70 to 140. The Castleton cut-off, 22 miles long, to carry freight around the city of Albany and costing \$25,000,000 was built largely for the benefit of New England.

The Central recognizes that, with the exception of New York, and possibly Chicago, no other city is more important to it than Boston, and the company at all times desires to promote the friendly relations already existing between the road and the city. The Central is not only appreciative of what Boston has done, but is optimistic as to an even more prosperous future, which the company expects to share with the city under the same relationships that have existed in the past.

The Canadian Roads in October

The statement of earnings and expenses of the Canadian Pacific for October shows an operating net of \$7,309,836, as

compared with \$10,006,279 in October of last year, a decrease of \$2,696,442. Gross earnings for the month are reported at \$20,152,442, a decrease of \$6,867,889, while operating expenses amounted to \$12,842,606, a decrease of \$4,171,446.

For the ten-month period ended with October, operating amounted to \$35,441,625, as compared with \$41,231,568 in the corresponding period of last year, a decrease of \$5,789,942. Gross earnings for the ten-month period amounted to \$178,091,528, a decrease of \$5,497,002, while operating expenses were up \$292,940 at \$142,649,902.

The following table shows the earnings, expenses and net for the month of October and for the ten-month period ending with October, with comparisons:

	OCTOBER		Dec.
	1929	1928	
Gross	\$20,152,442	\$27,020,332	\$6,867,889
Exp.	12,842,606	17,014,052	4,171,446
Net	\$ 7,309,836	\$10,006,279	\$2,696,442
TEN MONTHS ENDING			
Gross	\$178,091,528	\$183,588,531	\$5,497,002
Exp.	142,649,902	142,356,962	*292,940
Net	\$ 35,441,625	\$ 41,231,568	\$5,789,942

* Increase.

For the first ten months of the year, gross earnings of the Canadian National amounted to \$220,687,731. During the same period last year the sum was \$226,472,565, which makes a decrease of 2.55 per cent this year.

Operating expenses this year were greater—\$180,536,026, as compared with \$180,062,454. Operating net to the end of October totaled \$40,151,704 as against \$46,410,110 a decrease of 13.49 per cent. The operating ratio this year was 81.81 per cent, as compared with 79.51 per cent last year.

Gross earnings in the month of October this year were \$23,979,427, as compared with \$30,154,743 in October a year ago, a decrease of 20.48 per cent. Operating expenses were decreased by 8.45 per cent, being \$18,154,911, as compared with \$19,831,429, in the similar period last year. Net revenues were \$5,824,515.31, as compared with \$10,323,313, a decrease of 43.58 per cent. The operating ratio was 75.71 per cent, as compared with 65.77 per cent a year ago.

C. P. R. Plans for 1930

Confidence in Canadian conditions and prospects is expressed by the president of the Canadian Pacific Railway, E. W. Beatty, K. C., in a statement made in reply to a request for details of that railroads purchasing and construction programme for 1930.

While Mr. Beatty indicates that the company's program and the appropriations covering it will not be determined until January, the tenor of his statement suggests that it may be reasonably assumed that the C.P.R. will place substantial orders next year.

The statement follows:

"There is nothing in the financial situation in Canada which will affect the program of the Canadian Pacific for 1930. Drastic reductions in revenues have been caused in recent months due almost entirely to the lack of movement of grain

and flour. In the United States there has not been the same consequences in traffic results, many of the larger systems showing a substantial increase in both gross and net earnings. We have no reason to expect, however, that taking 1930 as a whole, and given good crops, the results of our operations in that year will not be satisfactory. Our programs for the year and the appropriations covering it are determined in January."

Illinois Central Electrifies Part of Freight Service

Since the completion of the electrification of the suburban service of the Illinois Central Chicago Terminal, on July 21, 1926, the Illinois Central has proceeded to electrify its freight service north of Thirty-first street, although the city ordinance requires only that the electrification of freight service be completed north of Roosevelt road (Twelfth street) by February 20, 1930. At present all of the freight tracks between Thirty-first street and Monroe street are equipped with catenary wires, while three freight tracks between Monroe street and Randolph street are similarly equipped. The north end of the electrification is at Randolph street. Thirty-first street is south of Roosevelt road, and Monroe street is three blocks south of Randolph. For about three months the Illinois Central has been trying out a combination trolley, storage battery and furnace-oil-engine switching locomotive of 90 tons capacity, manufactured by the St. Louis Car Company.

Four all-electric locomotives of 100-ton, 1,200-horsepower continuous rating have been ordered from the Westinghouse Electric & Manufacturing Company. These will be used for freight service between Thirty-first and Monroe streets. They will also be employed on the three electrified freight tracks north of Monroe street to South Water street yard. The Illinois Central has been using a 100-ton, 600-hp., oil-electric locomotive supplied by the General Electric, Ingersoll-Rand and American Locomotive companies for switching purposes. It has ordered five additional units from the same manufacturers. These six oil-electrics will be employed for freight switching in the South Water street yard and for all movements on the non-electrified tracks north of Monroe street.

The Michigan Central has ordered four oil-electric, storage battery locomotives of a type slightly different from those ordered by the Illinois Central. These will be employed for freight switching in the Michigan Central yard at South Water street. The Michigan Central locomotives will have a 300-hp. oil engine, a 200-kw. generator and a 219-cell storage battery weighing about 17 tons. A 200-gal. fuel tank will supply fuel for 10 hours at full load.

In all, there will be 10 oil-electric locomotives handling switching in the South Water street yards of the two roads and on the non-electrified tracks north of Monroe street. It will be seen, therefore, that both the Illinois Central and the Michigan Central will have completed electrification of their freight service north of Roosevelt road prior to February 20, 1930, the date specified in the Lake Front Ordinance. However, steam locomotives will still be used, as permitted by the ordinance, for the "manifest" freight trains of these two roads, although it is estimated that the electrification of the freight service will eliminate about 95 per cent of all the smoke and steam now issuing from the tracks and freight yards on Chicago's lake front.

Railway Earnings for October

Class I railroads in the first ten months this year had a net railway operating income of \$1,113,439,327, which was at the annual rate of return of 5.19 per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In the first ten months of 1928, the net railway operating income was \$986,170,768 or 4.66 per cent.

Operating revenues for ten months totaled \$5,383,774,297, compared with \$5,160,626,177 for the same period last year, or an increase of 4.3 per cent. Operating expenses amounted to \$3,818,702,641, an increase of 1.9 per cent. Taxes amounted to \$350,492,437, compared with \$326,365,690 for the same period the year before. For October, the tax bill amounted to \$39,951,567, an increase of \$283,544 over the previous year.

Fourteen Class I railroads operated at a loss in the first ten months of 1929, of which six were in the Eastern district, three in the Southern, and five in the Western.

Net railway operating income by districts for the ten months, with the percentage of return based on property investment on an annual basis was as follows:

New England Region	\$ 46,053,698	5.96%
Great Lakes Region	190,257,562	5.10%
Central Eastern Region	255,551,127	5.66%
Pocahontas Region	77,450,228	9.34%
Total Eastern District	569,312,615	5.78%
Total Southern District	114,247,357	4.19%
Northwestern Region	132,180,762	4.48%
Central Western Region	206,967,736	5.18%
Southwestern Region	90,730,857	4.69%
Total Western District	429,879,355	4.84%

Total United States .. \$1,113,439,327 5.19%

For October the net railway operating income was \$152,987,127, at the annual rate of 4.62 per cent. In October last

CLASS I RAILROADS—UNITED STATES

Month of October	1929	1928
Total operating revenues	\$ 608,661,331	\$ 618,750,941
Total operating expenses	404,326,987	402,161,433
Taxes	39,951,567	39,668,023
Net railway operating income	152,987,127	165,621,319
Operating ratio—per cent	66.43	65.00
Rate of return on property investment	4.62%	5.07%
Ten months ended October 31.		
Total operating revenues	\$ 5,383,774,297	\$ 5,160,626,177
Total operating expenses	3,818,702,641	3,748,579,124
Taxes	350,492,437	326,365,690
Net railway operating income	1,113,439,327	986,170,768
Operating ratio—per cent	70.93	72.64
Rate of return on property investment	4.62%	4.66%

year, the net railway was \$165,623,319 or 5.07 per cent. Operating revenues for October amounted to \$608,661,331 compared with \$618,750,941 in October last year or a decrease of 1.6 per cent. Operating expenses totaled \$404,326,987, compared with \$402,161,433 for the same month in 1928, or an increase of five-tenths of one per cent.

Class I railroads in the Eastern district for ten months had a net railway operating income of \$569,312,615, at the rate of 5.78 per cent. For the same period in 1928, their net was \$489,567,447, or 5.04 per cent. Operating revenues in the Eastern district for ten months totaled \$2,683,243,256, an increase of 5.8 per cent above the corresponding period the year before, while operating expenses totaled \$1,899,899,341, an increase of 3 per cent. The net railway operating income for October was \$70,592,153, compared with \$73,819,633 in October, 1928.

Class I railroads in the Southern district for ten months had a net of \$114,247,357 at the rate of 4.19 per cent. For the same period in 1928, their net amounted to \$108,592,106, at the rate of 4.06 per cent. Operating revenues for the ten months amounted to \$650,411,015, an increase of 1 per cent, while operating expenses totaled \$487,882,132, a decrease of one-tenth of one per cent. The net railway operating income in October amounted to \$13,341,209, while in the same month in 1928 it was \$16,347,036.

Class I railroads in the Western District for ten months in 1929 had a net of \$429,879,355, at the rate of 4.84 per cent. For the first ten months in 1928, they had a net of \$388,011,215, at the rate of 4.43 per cent. Operating revenues for the ten months amounted to \$2,050,120,026, an increase of 3.5 per cent over the same period last year, while operating expenses totaled \$1,430,921,168, an increase of 1.1 per cent. For October, the net railway operating income of the Class I railroads in the Western district amounted to \$69,053,765, as compared with \$75,456,650 in October, 1928.

Increased Appropriation Recommended for I. C. C.

Appropriations for the Interstate Commerce Commission amounting to \$10,329,963 for the fiscal year ending June 30, 1931, are proposed in the Bureau of the Budget estimates submitted to Congress by President Hoover with his annual Budget message. This is an increase of \$2,116,138 as compared with the amount appropriated for the present fiscal year plus the reappropriation of the \$665,000 unexpended balance for 1928, but \$1,000,000 of the increase is explained as being due to an estimate of appropriations under the "general railroad contingent fund" which it is estimated will be received and invested during the fiscal year 1931. This item has heretofore been included only in the statement of receipts and expenditures. It is also included this year, for the first time, in the estimate of appropriations in accordance with the policy of having the appropriation estimates reflect the amounts of the indefinite appropriations.

An increase of \$1,007,313 is also provided for valuation work, to enable the commission to make material progress in bringing valuations to date in accordance with the principles laid down in the recent decision of the Supreme Court in the O'Fallon case. There is also an increase of \$86,620 for the general work of policing the accounts of carriers, which is greatly in arrears; of \$14,345 for the inspection of locomotives, and \$7,860 for safety device inspection.

The Budget estimate for the Board of Mediation is \$328,380, a decrease of \$19,890 from the amount available for this year, which is stated to have been made possible by economies effected in the items for salaries and expenses.

The estimate for the Postoffice Department contains an increase of \$3,500,000 for railroad transportation and mail messenger service, to provide for handling the normal increase in the volume of mail transports. That for the Interior Department shows a reduction in the amount for the Alaska Railroad from \$1,200,000 to \$1,000,000, because of increased earnings and decreased capital outlays by the railroad.

For rivers and harbors, \$55,000,000 is carried for the maintenance and improvement of existing river and harbor works, an increase of \$5,000,000 over the appropriation for 1930. This is in addition to \$6,862,600, which is approximately the annual amount available from permanent specific and indefinite appropriations and contributed and advanced funds. For flood control on the Mississippi River \$35,000,000 additional is estimated as against \$30,000,000 appropriated for 1930, and for flood control on the Sacramento River \$1,000,000 is estimated, being the same amount as the appropriation for 1930.

Meetings and Conventions

AIR BRAKE ASSOCIATION.—T. L. Burton, Room 5605, Grand Central Terminal Building, New York City. Next meeting, May 13-16, 1930, Stevens Hotel, Chicago. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—Fred W. Venton, Crane Company, 836 So. Michigan Blvd., Chicago. Meets with Air Brake Association.

AMERICAN ASSOCIATION OF FREIGHT TRAFFIC OFFICERS.—J. D. Gowin, 112 W. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 S. Michigan Ave., Chicago. Next meeting, April, 1930, Daytona Beach, Fla.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 16-19, 1930, Minneapolis, Minn.

AMERICAN ASSOCIATION OF SUPERINTENDENTS OF DINING CARS.—F. R. Borger, Supt. Dining Car Service, Monon Route, Chicago.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—Guy C. Hecker, 292 Madison Ave., New York. Annual Convention, June 21-25, 1930, San Francisco, Cal.

AMERICAN RAILROAD MASTER TINNERS', COPPER-SMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcher, 202 North Hamlin Ave., Chicago.

AMERICAN RAILWAY ASSOCIATION.—H. J. Forster, 30 Vesey St., New York, N. Y.

Division I.—Operating.—J. C. Caviston, 30 Vesey St., New York, N. Y. Freight Station Section.—R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago.

Medical and Surgical Section.—J. C. Caviston, 30 Vesey St., New York.

Protective Section.—J. C. Caviston, 30 Vesey St., New York, Pacific Coast conference,

December 12, Hotel Bellevue, San Francisco, Cal.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section.—W. A. Fairbanks, 30 Vesey St., New York. Next convention, Sept. 16-19, 1930, Royal York Hotel, Toronto, Ont.

Division II.—Transportation.—G. W. Covert, 431 South Dearborn St., Chicago.

Division III.—Traffic.—J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering.—E. H. Fritch, 431 South Dearborn St., Chicago. Next meeting, March 11-13, 1930, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch. Next meeting, March 11-13, 1930, Palmer House, Chicago.

Electrical Section.—E. H. Fritch.

Signal Section.—H. S. Balliet, 30 Vesey St., New York. Next meeting, March 10-11, 1930, Stevens Hotel, Chicago.

Division V.—Mechanical.—V. R. Hawthorne, 431 South Dearborn St., Chicago. Annual convention, June 18-25, 1930, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section.—V. R. Hawthorne, 431 South Dearborn St., Chicago. Next convention, 1930, Chicago. Exhibit by Supply Men's Association.

Division VI.—Purchases and Stores.—W. J. Farrell, 30 Vesey St., New York, N. Y. Annual convention, June, 1930, Atlantic City.

Division VII.—Freight Claims.—Lewis Pucher, 431 South Dearborn St., Chicago. Next meeting, June 10-13, 1930, Olympic Hotel, Seattle, Wash.

Division VIII.—Motor Transport.—George M. Campbell, American Railway Association, 30 Vesey St., New York, N. Y. Car Service Division.—C. A. Buch, 17th and H. Sts., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Annual convention, October, 1930, Louisville, Ky. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—E. L. Taylor, Asst. to Exec., Vice-Pres., N. Y., N. H. & H., New Haven, Conn. Annual meeting, June 18-20, Hotel Duluth, Duluth, Minn.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—Works in co-operation with the American Railway Association, Division IV.—E. H. Fritch, 431 South Dearborn St., Chicago. Annual meeting, March 11-13, 1930, Palmer House, Chicago. Exhibit by National Railway Appliances Association.

AMERICAN RAILWAY MAGAZINE EDITORS ASSOCIATION.—Miss Page Nelson Price, Norfolk & Western Magazine, Roanoke, Va.

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—G. G. Macina, C. M. St., P. & P. R. R., 11402 Calumet Ave., Chicago. Annual convention, May, 1930, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.—Acting Secretary: H. W. Leighton, Harry W. Leighton Co., 565 W. Washington St., Chicago.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Railroad Division, Paul D. Mallay, Johns-Manville Corp., 292 Madison Ave., New York.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—H. L. Dawson, 228 N. LaSalle St., Chicago. Annual convention, January 28-30, 1930, Olympic Hotel, Seattle, Wash.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, District Claim Agent, Northern Pacific Ry., St. Paul, Minn. Annual convention, May 21-23, 1930, Richmond, Va.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucci, C. & N. W., Room 413, C. & N. W., Station, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 17th and H Sts., N. W., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—J. W. Fogg, MacLean-Fogg Lock Nut Co., 2649 N. Kildar Ave., Chicago. Meets with International Railway General Foremen's Association.

BOILER MAKER'S SUPPLY MEN'S ASSOCIATION.—George R. Boyce, A. M. Castle & Co., Chicago. Meets with Master Boiler Makers' Association.

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—I. B. Tanner, Joe E. Nelson & Sons, 3240 So. Michigan Ave., Chicago. Meets with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—C. R. Crook, 129 Charon St., Montreal, Que.

- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—G. K. Oliver, Chicago & Alton, Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.
- CAR FOREMEN'S ASSOCIATION OF LOS ANGELES.**—J. W. Krause, 514 East Eighth St., Los Angeles, Calif. Regular meetings, second Friday of each month, 514 East Eighth St., Los Angeles.
- CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, Mo.**—F. G. Wiegmann, 720 N. 23rd St., East St. Louis, Ill. Meetings first Tuesday of each month, except July and August, Broadview Hotel, East St. Louis, Ill.
- CENTRAL RAILWAY CLUB.**—E. F. Ryan (President), Buffalo, Rochester & Pittsburgh Ry., Buffalo, N. Y. Regular meetings, 2nd Thursday each month, except June, July, August, Hotel Statler, Buffalo, N. Y.
- CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.**—(See Master Car Builders' and Supervisors' Association.)
- CINCINNATI RAILWAY CLUB.**—D. R. Boyd, 811 Union Central Bldg., Cincinnati, Ohio. Meetings, 2nd Tuesday in February, May, September and November.
- CLEVELAND RAILWAY CLUB.**—F. L. Frericks, 14416 Alder Ave., Cleveland, Ohio. Meetings, first Monday each month, except July, August, September, Hotel Hollenden, Cleveland.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.**—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Annual meeting, September, 1930, Hotel Sherman, Chicago. Exhibit of International Railroad Master Blacksmith's Supply Men's Association.
- INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.**—J. H. Jones, Crucible Steel Company of America, Pittsburgh, Pa.
- INTERNATIONAL RAILWAY CONGRESS.**—Madrid Spain, May 5-15, 1930.
- INTERNATIONAL RAILWAY FUEL ASSOCIATION.**—C. T. Winkles, Room 700, La Salle Street Station, Chicago. Next meeting, May 6-9, 1930, Hotel Sherman, Chicago. Exhibit by International Railway Supply Men's Association.
- INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.**—Wm. Hall, 1061 W. Wabasha St., Winona, Minn.
- INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.**—L. R. Fyle, Locomotive Firebox Co., Chicago. Meets with International Railway Fuel Association.
- MASTER BOILER MAKERS' ASSOCIATION.**—A. F. Stiglmeier, New York Central, 29 Parkwood St., Albany, N. Y. Annual meeting, May 21-24, 1930, William Penn Hotel, Pittsburgh, Pa. Exhibit by Boiler Maker's Supply Men's Association.
- MASTER CAR BUILDERS' AND SUPERVISORS' ASSOCIATION.**—A. S. Sternberg, Belt Ry. of Chicago, Polk and Dearborn Sts., Chicago. Exhibit by Supply Men's Association.
- NATIONAL ASSOCIATION OF RAILROAD TIE PRODUCERS.**—Roy. M. Edmonds, 1252 Syndicate Trust Bldg., St. Louis, Mo.
- NATIONAL ASSOCIATION OF RAILROAD AND UTILITIES COMMISSIONERS.**—James B. Walker, 270 Madison Ave., New York.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, 1014 South Michigan Ave., Chicago. Exhibit at A. E. A. convention.
- NATIONAL SAFETY COUNCIL.**—Steam Railroad Section: A. W. Smallen, C. M. St. P. & P., Chicago.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2nd Tuesday in month, excepting June, July, August and September, Copley Plaza Hotel, Boston, Mass.
- NEW YORK RAILROAD CLUB.**—E. Sumner (President), Asst. to Gen. Supt. M. P. Penna. R. R., Philadelphia, Pa. Regular meetings, 3rd Friday in month, except June, July and August.
- PACIFIC RAILWAY CLUB.**—W. S. Wollner, P. O. Box 3275, San Francisco, Cal. Regular meetings 2nd Tuesday in month, alternately in San Francisco and Oakland.
- RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.**—F. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual convention, April 30-May 2, 1930, Hotel Roosevelt, New Orleans.
- RAILWAY BUSINESS ASSOCIATION.**—Frank W. Noxon, 1406 Packard Bldg., Philadelphia, Pa.
- RAILWAY CAR DEPARTMENT OFFICERS' ASSOCIATION.**—(See Master Car Builders' and Supervisors' Association.)
- RAILWAY CLUB OF PITTSBURGH.**—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in each month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.
- RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.**—Edward Wray, 9 S. Clinton St., Chicago. Meets with Association of Railway Electrical Engineers.
- RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIA-**
- TION.—F. W. Venton, Crane Co., 836 S. Michigan Ave., Chicago. Meets with Traveling Engineers' Association.
- RAILWAY FIRE PROTECTION ASSOCIATION.**—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.
- RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.**—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meets with Mechanical Division and Purchases and Stores Division, American Railway Association.
- RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.**—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A. Division 1.
- RAILWAY TREASURY OFFICERS' ASSOCIATION.**—L. W. Cox, 1217 Commercial Trust Bldg., Philadelphia, Pa.
- ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.**—T. F. Donahoe, Gen. Supvr. Road, Baltimore & Ohio, Pittsburgh, Pa. Exhibit by Track Supply Association. Next meeting, September 16-18, 1930, Hotel Sherman, Chicago.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2nd Friday in month, except June, July and August.
- SIGNAL APPLIANCE ASSOCIATION.**—F. W. Edmunds, West Nyack (Rockland Co.), N. Y. Meets with A. R. A. Signal Section.
- SOUTHEASTERN CARMEN'S INTERCHANGE ASSOCIATION.**—Clyde Kimball, Inman Shops, Atlanta, Ga. Meet semi-annually.
- SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.**—A. T. Miller, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3rd Thursday in January, March, May, June, September and November, Ansay Hotel, Atlanta.
- SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.**—R. G. Parks, A. B. & A. Ry., Atlanta, Ga.
- SUPPLY MEN'S ASSOCIATION.**—E. H. Hancock, Treasurer, Louisville Varnish Co., Louisville, Ky. Meets with A. R. A. Div. V. Equipment Painting Section.
- SUPPLY MEN'S ASSOCIATION.**—Bradley S. Johnson, W. H. Miner, Inc., Chicago. Meets with Master Car Builders' and Supervisors' Association.
- TRACK SUPPLY ASSOCIATION.**—L. C. Ryan, Oxweld Railroad Service Co., 80 E. Jackson Blvd., Chicago. Meets with Roadmasters' and Maintenance of Way Association.
- TRAVELING ENGINEERS' ASSOCIATION.**—W. O. Thompson, 1177 East 98th St., Cleveland, O. Annual meeting, September 23-26, 1930, Hotel Sherman, Chicago. Exhibit by Railway Equipment Manufacturers' Association.
- WESTERN RAILWAY CLUB.**—W. J. Dickinson, 189 West Madison St., Chicago. Regular meetings, 3rd Monday each month, except June, July and August.

Foreign

Reduced Fares to be Retained in Britain

Sentiment favoring the retention of the reduced passenger fares on British railways developed from a recent conference of passenger traffic officers there, according to a report in the *Times* (London). Though the decision of this conference is not final, the account points out that is unlikely that any material change in the present reduced fare policy will be made next year.

The conference found that the issuance of reduced fare tickets had been of the greatest assistance to the companies in winning back passengers from competing highway services and in retaining other passengers who might have been attracted by alternative forms of transportation. Thus its recommendations are expected to provide for the retention of most of the reduced fares now in effect. These reduced fares, as had been pointed out from time to time in the *Railway Age*, have resulted in greatly increased traffic but have, nevertheless, brought reduced passenger revenues and increased expenses. The view of the conference in this regard is that the bottom of the curve has now been reached and, providing no industrial upheaval interferes, the time is approaching when an improvement in passenger traffic may be expected.

Reinstate Russian Officers of Chinese Eastern

The Mukden or Manchurian Government in China was, on November 28, officially reported to have met the demand of the Russian Government for the reinstatement of those Soviet officers whose dismissal from the Chinese Eastern Railway precipitated the present dispute between Russia and China. The Soviet Government had demanded this re-establishment of the status quo before entering negotiations for a peaceful settlement.

Associated Press dispatches on November 28 stated that Manchuria, invaded by the Soviet armies, had despaired of receiving aid from the Nanking or Nationalist government of China and thus had taken independent steps for a peace with Russia. The break between Russia and China occurred last July when the Russian officers of the Chinese Eastern were dismissed after a raid on the Russian consulate in Harbin, Manchuria. The Chinese government claimed that this raid disclosed that these Soviet officers were using their railway positions to spread communistic propaganda in Manchuria.

Meanwhile, on December 2, Secretary of State Stimson appealed to Russia and China, as signers of the Kellogg Pact for the renunciation of war as an instrument of national policy, calling their attention to their pledge in this regard and asking them to avoid war-like measures in Manchuria and to adjust their dispute in that region over the Chinese Eastern by pacific means. Notification of this reminder was sent to the 53 other signatory nations.

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Traffic

The first trains were operated into the new union passenger terminal at Cleveland, Ohio, on December 1. Six New York Central and four Cleveland, Cincinnati, Chicago & St. Louis trains have been transferred to the new station to relieve congestion at the old union station on the lake front.

The Pennsylvania has had prepared for general exhibition a moving picture, with sound, of the Broadway Limited. The views are unusual—in particular one taken of the driving mechanism from the cab step at full speed—and well calculated to arouse interest and hold it. The direction and filming of the picture were arranged by the Visagraphic Pictures, Inc., New York.

Twenty-three railroads on the Pacific Coast, including the Atchison, Topeka & Santa Fe, the Southern Pacific, the Union Pacific and the Western Pacific, have filed a suit in the federal district court at San Francisco, Cal., to set aside an order of the Interstate Commerce Commission which would reduce the rates on shipments in refrigerator cars. The order limits the roads to the collection of icing charges only, while the complaint states that there are many other expenses incident to the handling of refrigerator cars which are properly chargeable to the shipper.

Cabs de Luxe

At the Pennsylvania station, New York City, where, as at all other large stations, there is regular taxicab service, the operation of which is suitably regulated by the railroad company, announcement is made that, henceforth, passengers may have the benefit of the "Pennsylvania Cadillac Motor Service." Vice-President George Le Boutillier says that these seven-passenger Cadillac Imperial limousines, of 1930 models, are to be private cars in every respect, including private license plates. The chauffeurs will wear liveries and no insignia of any kind appears either on the cars themselves or upon the chauffeurs' uniforms. These cars will be available by the hour at the lowest rates for which equivalent service is obtainable in New York. They may be had also for shopping, sightseeing and other uses. The telephone call for these cars is Pennsylvania 4664.

Dixie Flyer Route Establishes New Travel Bureau

The Dixie Flyer Route, composed of the Chicago & Eastern Illinois, the Louisville & Nashville, and the Nashville, Chattanooga & St. Louis, has opened a new travel service bureau at 112 West Adams street, Chicago. Although maintained by lines operating to the south, the southeast and the southwest, the bureau will serve the traveling public in general. Regardless of the visitors destination, all information will be given without charge. With the Dixie Flyer and the Dixie

Limited carrying increasingly large numbers of passengers daily it was found that the information facilities were not sufficient. H. R. Sampson, formerly traveling passenger agent of the Chicago & Eastern Illinois is manager of the new bureau.

N. & W. Opens Detroit Coal Bureau

A new coal bureau, created to serve coal producers in the territory served by the Norfolk & Western and distributors and consumers of coal, was opened in Detroit, Mich., on December 1. The success of a similar bureau, established in Chicago on April 1 of this year, led to the establishment of the Detroit bureau, it was announced. N. C. Davis, formerly assistant car distributor of the railway at Williamson, W. Va., has been appointed district manager of the coal bureau.

Mileage Rates for Cotton Proposed

An extensive revision of the freight rates on cotton within and from southern and southwestern territories, largely on a mileage-scale basis, is recommended by Examiner G. H. Mattingly, of the Interstate Commerce Commission, in a proposed report made public on November 30 in Part 3 of the commission's rate structure investigation undertaken pursuant to the Hoch-Smith resolution. The proceeding is assigned for oral argument before the commission on February 5, 6, and 7. It had its inception in eleven complaints filed by co-operative cotton growers, associations, members of the American Cotton Growers' Exchange, which were combined into one proceeding with other complaints. As to rates in southern territory the report recommends 38 per cent of the corresponding first class rates prescribed in the Southern Class Rate Investigation, plus arbitraries ranging from 4 to 22 cents for distances up to 200 miles and over. For southwestern territory a similar scale is proposed to be added to 38 per cent of the first-class rates prescribed in the Consolidated Southwestern Cases. Recommendations also are given as to maximum water-and-rail rates from southern territory to the northeast via South Atlantic ports and bases are suggested for water-and-rail rates from southern and southwestern territories to the Northeast via Gulf ports.

Counsel in the co-operative complaints specifically disclaimed any demand for application of the special rule in the Hoch-Smith resolution on account of economic depression in the industry but it was invoked in complaints filed by the Oklahoma and Mississippi commissions.

The recommendations are made "giving due weight to the fact that cotton is a basic agricultural product, and also to the fact that it is a commodity of relatively high value, which, by reason of its natural characteristics, and the practices inherent in present methods of its production and marketing, requires transportation services which are onerous and expensive to such an extent as to distinguish it to a degree from the general run of other traffic."

Equipment and Supplies

Locomotives

THE ST. LOUIS SOUTHWESTERN is inquiring for ten 4-8-4 type locomotives.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has authorized the purchase of 15 freight locomotives.

THE CANADIAN NATIONAL is inquiring for 18 of the 2-10-2 type locomotives and 12 of the 4-8-2 type.

THE CHICAGO, BURLINGTON & QUINCY will build one eight-wheel switching locomotive and 20 six-wheel switching locomotives in its own shops.

THE CERRO DE PASCO (Peru) has ordered two 2-8-0 type locomotives from the American Locomotive Company. These locomotives will have 21-in. by 28-in. cylinders and a total weight in working order of 176,000 lb.

THE NORFOLK & WESTERN will spend more than \$1,000,000 for the construction in its Roanoke shops of ten large Mallet (2-8-8-2) type freight locomotives. The locomotives will be similar to, but have a larger firebox than the Class Y-4 type now operated by the railroad. The new locomotives will have a tractive power of 121,000 lb. and will weigh approximately 580,000 lb. each, exclusive of the tender. The length of each will be 112 ft. overall, and the height, 15 ft. 9 in. Ten new 21,000 gal. tenders will be built for the new Mallets. Each tender loaded with coal and water, will weigh 335,000 lb., making a combined total weight for the engine and tender of 915,000 lb.

Passenger Cars

THE CANADIAN NATIONAL is inquiring for 20 baggage cars 60 ft. long.

THE MEXICAN RAILWAY is building one mail and baggage car in its own shops.

THE READING COMPANY.—See item under Freight Cars.

THE MISSOURI PACIFIC budget for 1930 includes three dining cars.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC will build 15 passenger cars in its own shops.

THE SOUTHERN PACIFIC is inquiring for six gas-electric passenger and baggage cars.

THE ST. LOUIS-SAN FRANCISCO has ordered 10 steel baggage cars and 10 steel baggage and mail cars all to be 70 ft. long, from the American Car & Foundry Company. Inquiry for 15 cars was reported in the *Railway Age* of October 19.

THE ERIE has ordered a 600 hp. oil-electric rail motor car from the Westinghouse Electric & Manufacturing Company. The car body will be built by the St. Louis Car Company. It will be divided into a power plant room, a mail compartment and a baggage compartment. Two Westinghouse oil engine generator sets will provide the power for propelling the car.

Freight Cars

THE CANADIAN NATIONAL is inquiring for 3,000 box cars and 200 refrigerator cars of 40 tons' capacity.

THE CHICAGO & NORTH WESTERN is inquiring for one derrick car.

SWIFT & COMPANY are inquiring for 300 steel underframes.

THE GREAT NORTHERN has ordered 200 flat cars of 50 tons' capacity from the Standard Steel Car Company.

THE BEAUBARNOIS LIGHT, HEAT & POWER COMPANY, Montreal, Quebec, has ordered 60 air dump cars of 20 yd. capacity from the National Steel Car Corporation.

THE MISSOURI PACIFIC has ordered 1,000 hopper cars of 70 tons' capacity from the Standard Steel Car Company. Inquiry for this equipment reported in the *Railway Age* of November 9.

THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC has ordered 300 ore cars of 70 tons' capacity from the Pressed Steel Car Company. This company is also inquiring for 600 flat cars and has authorized the purchase of 700 box cars and 750 stock cars.

READING.—Directors of this company have authorized an expenditure of more than \$10,000,000 for new equipment. Orders will be placed for 2,000 all-steel box cars and 100 multiple-unit electric passenger coaches. The box cars will have a length of 40 ft. 6 in., and a height of 9 ft. 3 in. Their estimated cost is \$4,700,000. The estimated cost of the multiple-unit cars is \$4,800,000. They will be 73 ft. long and 13½ ft. high and will weigh 140,000 lb. Each car will seat 84 passengers and will be designed for a speed of 70 miles an hour. In addition, orders will be placed for a number of steel coaches and gasoline-electric cars.

Iron and Steel

THE CHESAPEAKE & OHIO is inquiring for 1,500 tons of structural steel for a bridge at Cincinnati, Ohio.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for 300 tons of structural steel for miscellaneous bridge work.

THE CHICAGO, ROCK ISLAND & PACIFIC has ordered 340 tons of structural steel for miscellaneous bridge work from the American Bridge Company.

THE DELAWARE, LACKAWANNA & WESTERN has received bids on about 310 tons of structural and miscellaneous steelwork for a light inspection shed at Hoboken, N. J.

THE SOUTHERN PACIFIC has ordered 120,000 tons of rails, 60,000 tons being placed with the Colorado Fuel & Iron Company, 30,000 tons with the Bethlehem Steel Company and 30,000 tons with the Tennessee Coal, Iron & Railroad Company.

THE BOSTON & MAINE has ordered 605 tons of steel for various bridges from the Boston Bridge Works and 755 tons from the Phenix Bridge Company. An order for 1,000 tons for a bridge at Windsor, Vt., has been given to the American Bridge Company.

THE PENNSYLVANIA has ordered 435 tons of steel for work at Shinnecock Hills, N. Y., on the Long Island Railroad, from the American Bridge Company. It has also received bids on 300 tons of steel for an overhead bridge at Coatesville, Pa.

THE SOUTHERN has ordered from the Tennessee Coal, Iron & Railroad Company 44,200 tons of rail, enough to lay 270 miles of track, for delivery during the first six months of 1930. The order includes 11,000 tons of 130-lb. rail; 24,800 tons of 100-lb. rail, 3,000 tons of 90-lb. rail and 5,400 tons of 85-lb. rail.

Machinery and Tools

THE ATCHISON, TOPEKA & SANTA FE is inquiring for a 24-in. drill.

THE CHICAGO & NORTH WESTERN is inquiring for a 14-in. by 96-in. grinder and a motor-driven turret lathe.

Signaling

THE ILLINOIS CENTRAL has ordered from the General Railway Signal Company, a 12-lever dispatching machine to be installed in the interlocking tower at Ashkum, Ill., and to be used to operate switches and signals in place of two mechanical interlockings now in service at Clifton and Chebanse. The machine will be used also to control the existing signaling for the operation of trains in either direction on either track between Ashkum and Otto, 11.5 miles. This section of road is immediately south of Kankakee. From Ashkum north the distance to Clifton is 3.9 miles; Clifton to Chebanse 4.8 miles; Chebanse to Otto, 2.8 miles.

THE UNION RAILROAD has contracted with the Union Switch & Signal Company for the installation of an electro-pneumatic interlocking plant at Tower J, Monongahela Junction, near Pittsburgh, Pa. This junction consists of a system of four wyes, connecting lines to Port Perry, Munhall, Duquesne and the Clairton branch. The machine will be Model 14, with 51 levers; and position-light signals will be used.

Supply Trade

The Milwaukee Electric Crane & Hoist Corporation is planning the construction of a 50-ft. by 60-ft. addition to its shop at Milwaukee.

H. F. Miter, general manager of the Cleveland, Ohio, district of the **Austin Company**, Cleveland has been elected vice-president in charge of foreign operations. **L. E. Cooney**, sales manager, has been promoted to assistant general manager of the Cleveland district.

R. B. Tuhey has been promoted to district representative of the **Lincoln Electric Company**, Cleveland, Ohio; Mr. Tuhey will have his office in the Peoples Bank building, Indianapolis, Ind. **S. H. Taylor** has been promoted to district representative at Los Angeles, Cal., with office at 812 Mateo street, in that city.

William K. Farrell, assistant general purchasing agent of the **American Locomotive Company**, at New York, has been appointed general purchasing agent. In 1903 when Mr. Farrell was just out of high school, he entered the employ of the American Locomotive Company at the Schenectady plant. After a varied experience in different departments at the plant, he was transferred in 1910 to the New York office as one of the buyers in the purchasing department. In 1921 he was appointed assistant general purchasing agent, which position he held until his recent promotion.

Lockwood Hill, for the past ten years a member of the Blackman Hill Company, St. Louis, Mo., has organized a new company to be known as the **Hill Equipment Engineering Company** with office at 4620 Delmar boulevard, St. Louis. The new organization will have the exclusive sale of the products of the Lincoln Electric Company and the Baker Industrial Truck Company in the St. Louis metropolitan district and the eastern Missouri and southern Illinois territories, and will carry a complete stock of motors and welders, welding supplies, accessories and parts.

The Bethlehem Steel Corporation, through one of its subsidiaries, has entered into agreements covering the acquisition of all the properties and assets of the Pacific Coast Steel Company and the Southern California Iron & Steel Company. The properties to be acquired include steel manufacturing plants located at South San Francisco and Los Angeles, Cal., and Seattle, Wash. The plants have a steel ingot capacity of 380,000 gross tons a year and produce billets, merchant and reinforcing bars, light shapes, plates, rails, tie plates, splice bars, forgings bolts, nuts and rivets. The properties, when

acquired, will be operated through a separate subsidiary company having an active management with headquarters on the Pacific Coast.

Floyd K. Smith, for the past 11 years vice-president and treasurer of the **Donner Steel Company**, Buffalo, N. Y., has been elected president of the company and its subsidiaries, the Donner Steamship Company and the Donner Ore Company succeeding **William H. Donner**, resigned. Control of the Donner Steel Company was recently acquired by Continental Shares, Inc., Cleveland, Ohio. Mr. Smith has been associated with the iron and steel industry for 35 years. Following his connections with the Republic Iron & Steel Company and various companies, he acquired an interest in the Valley Mould & Iron Company in 1910 where he remained as vice-president until 1918 when he joined the Donner Steel Company. Plans are under way for the merger of the Donner Steel Company and the Witherow Steel Company, Pittsburgh.

Obituary

J. H. Hollinger, Philadelphia representative of the Landis Tool Company, Waynesboro, Pa., died on November 18.

Trade Publication

PIPE LINE PROTECTION. — The Lewis Asphalt Engineering Corporation, New York, has reprinted for distribution an interesting and informative paper on the subject of protecting pipe lines against corrosion, prepared by A. Saunders, research engineer of that Company.

* * *



On the New York, New Haven & Hartford

Construction

ATCHISON, TOPEKA & SANTA FE. — A contract for the construction of a highway subway under the tracks of this company at Mechanic street, Emporia, Kan., has been let to the Sharpe & Fellows Construction Company, Los Angeles, Cal. The cost of the construction will be borne by the city and the railroad.

BOSTON & MAINE. — Acting President Thomas N. Perkins has recently announced that the extensive ballasting and rail-laying programs begun earlier this year will be continued during the remainder of 1929 and the early part of 1930. The eastern lines of the Portland division will be rock ballasted between East Somerville, Mass., and Beverly, and rock ballasting of the Fitchburg division between Boston and Troy, N. Y., now more than half completed, will be finished. An additional 49 miles of 130-lb. rail will also be laid on the Fitchburg division. The work is to be done by company forces. These new projects, in addition to the program of grade revision and bridge improvements on the southern and Connecticut River divisions reported in the *Railway Age* of November 16, and for which work has been started and steel ordered, brings the 1930 budget for this company as announced to date to a total of \$9,086,441, divided as follows: Rail, \$2,758,759; ballast, \$1,472,000; bridges, \$2,847,682; grade changes, \$1,900,000, and shop machinery for installation in the new Somerville engine terminal \$108,000.

CANADIAN NATIONAL. — Contracts for the demolition of present buildings on the site and the excavation and building of foundations for a new five-story, 100-room hotel at Kent and Pownall streets, Charlottetown, P. E. I., have been awarded to R. S. Allen, of Halifax, N. S.

CANADIAN PACIFIC. — A contract for the construction of a brick and stone building at Victoria, B. C., which will house the power plant for the Empress hotel has been awarded to Carter, Halls, Aldinger & Co., Victoria. The cost of the building, construction of which will be started about December 15, will be approximately \$600,000.

CHICAGO, ROCK ISLAND & PACIFIC. — A contract has been awarded to the Clinch-Mitchell Construction Company, Chicago, for the construction of a new single-track line between Nettleton, Mo., and Polo, 18 miles. This contract represents the construction of the second section of a new line from Coburn, Mo., to Kansas City, Mo.

GREAT NORTHERN. — A contract has been let to Peppard & Fulton, Minneapolis, Minn., for the construction of eight pilings and timber crib piers and the false work which will support one timber and three steel spans of a new bridge over

the Columbia river near Marcus, Wash. A contract for the grading which will be required in connection with the removal of the approaches from the old to the new bridge has been awarded to the Morrison-Knudsen Company, Boise, Idaho. The new bridge, which will be made up of a 150-ft timber span, two 250-ft. steel spans and one 225-ft. steel span and pile approaches 700 ft. in length, will involve an expenditure of about \$300,000. The erection of the bridge will be undertaken by company forces.

LONG ISLAND. — Elimination of the Deer Park avenue and Half Hollow road crossings of the Long Island, west of Deer Park station, Babylon, N. Y., has been directed by the Public Service Commission of New York. The elimination of the former crossing will be accomplished by carrying the highway under the revised grade of the railroad at an estimated cost of \$220,000, while the latter crossing is to be closed.

NASHVILLE, CHATTANOOGA & ST. LOUIS. — This company plans to undertake the construction with company forces of a two-story brick and concrete baggage and mail building at Atlanta, Ga., which will have outside dimensions of 30 ft. by 165 ft. The cost of the structure is estimated at \$40,000.

OZARK & PHILPOTT. — This company has applied to the Interstate Commerce Commission for authority to build a line of 7 miles connecting with the Missouri Pacific at Ozark, Ark. J. S. Turner, of Ozark, is president.

PENNSYLVANIA. — This company has recently awarded to Newton A. K. Bugbee & Co., of Trenton, N. J., contracts for miscellaneous work at Trenton, at a total cost of \$187,000. The work includes the construction of a new bridge at Center and Cooper streets; the raising of the Chestnut avenue, State street and Monmouth street bridges over the New York division, with incidental street approach work; the raising of the Delaware & Raritan Canal aqueduct; the raising of the Greenwood avenue and Wire Mill siding bridges over the canal, with incidental street work, and work along the canal including the construction of a new lock, the raising of the canal banks and of the Trenton division tracks. Other contracts let within the last few days are as follows: To J. Rich Steers, Inc., of New York City, for the construction of retaining walls for loop tracks and a bridge at Washington street, Jersey City, N. J., at an approximate cost of \$137,000; to George B. Spearin, Inc., of New York City, for the construction of a timber bulkhead at the warehouse now being built at the waterfront of the Pennsylvania docks and warehouses at Jersey City, N. J., at a cost of \$80,000; to the

McNichol Paving & Construction Company, Philadelphia, Pa., for the construction of foundations for a 10-stall extension to the enginehouse at the South Philadelphia terminal yard at Philadelphia at a cost of approximately \$74,000; to the T. J. Foley Company, Bellevue, Pa., for the construction of a branch line and three storage tracks at South Canton, Ohio, at a probable cost of \$66,000; to the Cold Spring Construction Company of Akron, N. Y., for the construction of an overhead bridge, approaches and connecting roads in connection with the elimination of the Colby road crossing at Protection, N. Y., at a cost of \$60,000; to the Daniel S. Bader Construction Company, Atlantic City, N. J., for the construction of a new drawbridge to carry Lalor street over the Delaware & Raritan Canal feeder at Trenton, N. J., at a cost of \$44,000, and to the same company for the construction of an overhead bridge on New Jersey State highway No. 17, one mile east of Repaupo, N. J., at an approximate cost of \$43,000.

READING. — Announcement has been made that this company will vigorously push to completion its \$20,000,000 electrification program. Construction is progressing from the Reading terminal, Philadelphia, Pa., to Lansdale, Pa., which will be the first line open for electrification. The catenary structures are being erected all along the line and the Bethlehem Steel Company is rushing work on the steel equipment. At Wayne Junction, Pa., a \$1,000,000 electric car repair and storage shop is in the course of construction. It is to be ready for occupancy in the spring. Upon completion of the Lansdale line, the Chestnut Hill, Pa., branch will be electrified, as well as the New York branch as far as Langhorn, Pa.

ST. LOUIS-SAN FRANCISCO. — A contract for the construction of a reinforced concrete viaduct over the tracks of this company at Boulder avenue, Tulsa, Okla., has been awarded to the Standard Paving Company, Tulsa, at a cost of \$140,200.

* * *



A Paris-Berlin Express on the German Railways

Railway Finance

BALTIMORE & OHIO.—Acquisition of B. R. & P.—The Interstate Commerce Commission has postponed the oral argument set for December 19 on the application for the authority to acquire control of the Buffalo, Rochester & Pittsburgh.

CANADIAN NATIONAL.—Revision of Organization.—Sir Henry Thornton, president and chairman of this company is in London engaged, it is reported, in preliminary negotiations with security holders of constituent companies looking to a revision of the company's capital structure and corporate organization.

CENTRAL VERMONT.—Equipment Trust Notes.—This company has applied to the Interstate Commerce Commission for authority to issue \$935,000 of equipment trust notes to the Pressed Steel Car Company and \$914,000 to the Pullman Car & Manufacturing Company.

CHESAPEAKE & OHIO.—Acquisition of Hocking Valley.—As briefly reported in last week's issue, this company has applied to the Interstate Commerce Commission for authority to acquire the property of the Hocking Valley and the Chesapeake & Hocking, now controlled through stock ownership. The application states that certain minority stockholders in the Hocking Valley (the C. & O. owns 80.35 per cent) have proposed to the C. & O. that a reorganization of its interest in the two companies be brought about by acquisition of the properties. It is proposed to issue 247,488.75 shares of C. & O. common stock in exchange for the property of the Hocking, which will distribute the stock to its stockholders. The C. & O. also will exchange the 148,070 shares of Chesapeake & Hocking stock which it owns (all except directors' shares) for the property of that company.

CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC.—Abandonment.—This company has applied to the Interstate Commerce Commission for authority to abandon a branch line from Disque to Twin Rivers, Wash., 10 miles.

DULUTH & IRON RANGE.—Excess Income Hearing Postponed.—The Interstate Commerce Commission has postponed from December 3 to January 16, the hearing involving the ascertainment of the excess income of the Duluth & Iron Range and the Duluth, Missabe & Northern, for recapture purposes.

GEORGIA & FLORIDA.—Receivers' Certificates.—The receivers have applied to the Interstate Commerce Commission for authority for an issue of \$100,000 of 7 per cent receivers' certificates.

GRAND TRUNK WESTERN.—Equipment Trust Notes.—This company has applied

to the Interstate Commerce Commission for authority to issue \$2,784,000 of equipment trust notes to the Pressed Steel Car Company, \$914,000 to the Pullman Car & Manufacturing Company and \$540,000 to the Baldwin Locomotive Works.

MINNEAPOLIS, ANOKA & CUYUNA RANGE RAILROAD.—Acquisition.—This company has applied to the Interstate Commerce Commission for authority to acquire and operate the property of the M. A. & C. Railway, which has been in receivership, and to issue for the purpose 1,000 shares of preferred stock and 4,000 shares of common stock, without par value.

MISSOURI PACIFIC.—Examiner Recommends Approval of Unification Plan.—Examiner O. D. Weed of the Interstate Commerce Commission has submitted a proposed report, recommending that the commission approve the proposal of the Missouri Pacific to lease for 99 years the property of 22 subsidiary companies now controlled through stock ownership, having a total mileage of 3350 miles, upon the accepted condition that the applicant maintain all routes of traffic which it, or any of its lessor lines included in the proposed leases, has with any of the interveners, which includes several connecting short lines, the Missouri-Kansas-Texas, the Kansas City Southern and the Trinity & Brazos Valley. The lines to be leased include the New Orleans, Texas & Mexico, the International-Great Northern and the St. Louis, Brownville & Mexico, while most of the others are subsidiaries of these companies. In proposing the unification the Missouri Pacific said that to operate the properties with its own as a unit would improve service and effect economies, amounting to over \$1,000,000 annually, including \$45,000 in the accounting of the general manager's office, \$40,000 in unified purchasing, \$109,892 in the centralizing of the stores department, \$187,000 in the mechanical departments, \$90,000 in interest on stocks of materials and supplies, and \$275,000 in the accounting department. Terms of the proposed lease were opposed by minority stockholders of the N. O. T. & M., but the examiner states that the guaranty of \$7 per share annually for 99 years on the stock of that company does not seem to be unfair.

Several connecting short lines including the Waco, Beaumont, Trinity & Sabine, intervened urging that if the application is granted their lines should be acquired by lease or otherwise and taken into the system, but the examiner finds that the record does not clearly indicate the propriety of assigning any of them to the Missouri Pacific. "All but three of those lines", he says, "are connected with lines of one or more large carriers other than the applicant and it is not thought that they have presented any convincing reason why they should be taken over by the applicant rather than by one of those other carriers."

This record does not present a proper basis for the determination of the disposition to be made of these short lines. If they are to be assigned to larger systems it should be in a proceeding to which at least all connecting carriers are parties."

NEW YORK CENTRAL.—*Equipment Trust.*—The Chase Securities Corporation and Freeman & Co. are offering, if issued, \$5,895,000 of an authorized issue of \$11,175,000 of New York Central Second Equipment Trust of 1929 certificates, bearing 4½ per cent interest.

NEW YORK CENTRAL.—*Final Valuation.*—The Interstate Commerce Commission on November 27 made public its final valuation report on the properties of the New York Central Railroad and 69 subsidiary or affiliated companies comprising, with a few minor exceptions, all of the common-carrier property of the New York Central System, finding a total final value for rate-making purposes of \$1,578,206,614, including \$47,331,898 for working capital, as of the respective valuation dates ranging from 1915 to 1919. Although the report was adopted July 8, several weeks after the decision of the Supreme Court in the O'Fallon case, most of the work on it had been done before the court decision and no reference to it is included. The aggregate valuation tentatively found for the properties of the system was \$1,502,845,076, to which was added the amount for working capital.

The final value for the New York Central Railroad was placed at \$745,300,000 for the property owned and used and \$5,790,880 for that owned but not used.

The separate figures for final value of the carrier property owned and used by some of the more important subsidiary or affiliated are as follows: Cleveland, Cincinnati, Chicago & St. Louis, \$146,500,000; Michigan Central, \$135,189,250; Pittsburgh & Lake Erie, \$54,020,000; Toledo & Ohio Central, \$26,210,000. Property used but not owned included: Big Four \$23,469,200; Michigan Central, \$20,474,951; Chicago Junction, \$29,192,626; Pittsburgh & Lake Erie, \$36,267,265.

The books of the New York Central, the report states, record an investment in road and equipment on valuation date of \$678,762,525. If certain suggested readjustments were made this would become \$635,757,301. Owing to lack of proof large sums of money were excluded from the investment account which were alleged to have been expended for road and equipment in the past but incorrectly charged to other accounts.

The protest of the company to a conditional restatement of the Central's accounts following the consolidation in 1914 was overruled. In this consolidation the balances in the road and equipment accounts and the profit and loss accounts of the consolidating companies, after the elimination of various intercompany items, were transferred intact to the books of the new consolidated corporation. In the tentative report these were recast in accordance with the theory that the transaction, while not strictly a purchase, should be treated in

the same way, and that the considerations given and recorded were represented by the par value of capital stock and funded debt issued or assumed by the new company, and the other outstanding liabilities or deferred obligations to be liquidated, less the current assets taken over.

On the price basis used in the tentative valuations the carriers contended for an aggregate value for system-owned properties of approximately \$1,800,000,000, exclusive of working capital. This contemplated a much smaller deduction for depreciation than tentatively made and a large provision for appreciation, the major part of the excess over estimated cost of reproduction less depreciation and land values being treated as appreciation of roadway. The sum claimed also includes 10 per cent for so-called going-concern value.

General expenditures in the final report were estimated at 1 per cent of roadway accounts, exclusive of land, in lieu of 1.5 per cent shown in the tentative report.

Commissioner Eastman, in a dissenting report, said in part: "The decision of the Supreme Court on May 20, 1929, in *St. Louis & O'Fallon Ry. Co. v. United States* makes it desirable, I believe, for us to review our methods of valuation and consider whether they are consistent in all respects with the views expressed by the court. I doubt whether they are altogether consistent, for apparently it is the view of the court that value for rate-making purposes should correspond with its conception of the actual value of the property, using the word 'value' as it is used in common parlance. There is much that may and should ultimately be, said in regard to this matter, but such discussion may appropriately be deferred, I think, until we bring the value of some one important carrier up to date, and use that value in the exercise of our powers of regulation. While a single-sum value as of a rather remote date in the past is fixed by this report and order, it is obvious that this value can not be put to actual use, either in recapture or in regulation of rates. These primary or basic valuations are chiefly important because of the underlying data which they accumulate and classify, and because they provide a foundation for the ascertainment of subsequent valuations at later dates which can be put to actual use."

Commissioner Eastman also objected to the treatment of the accounts following the consolidation.

PENNSYLVANIA.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue \$1,574,000 of general and refunding mortgage 4½ per cent bonds, series A, to be delivered to the Pennsylvania at par in part payment of indebtedness to that company; the latter company assuming obligation and liability as lessee and guarantor of the issue.

PENNSYLVANIA.—*Stock Issue.*—An application has been filed with the Interstate Commerce Commission for authority to issue and sell \$72,396,750 of additional common stock, to be offered to existing shareholders at par to the amount of

12.5 per cent of their holdings, the proceeds to be used to provide for the payment of maturing obligations, including \$50,000,000 of ten-year 7 per cent secured bonds, and for other purposes. An additional \$18,000,000 of stock will be offered to employees at par provided the stockholders approve at their meeting on April 8, 1930.

SOUTHERN PACIFIC.—*Abandonment.*—This company and the New Mexico & Arizona have applied to the Interstate Commerce Commission for authority to abandon the line between Flux and Calabasas, Ariz., 12.45 miles.

WISCONSIN CENTRAL.—*Bonds.*—This company has filed with the Interstate Commerce Commission a supplemental application, asking authority to sell \$8,000,000 of first refunding mortgage bonds and withdrawing its application for authority to pledge \$4,106,000 of similar bonds. The application states that with the guaranty of the Canadian Pacific the bonds can now be sold on favorable terms and the company has agreed to sell them to Dillon, Read & Co., at 95.

Dividends Declared

Atlanta, Birmingham & Coast.—Preferred, 2½ per cent, payable January 2 to holders of record December 13.

Buffalo & Susquehanna.—Preferred, 2 per cent, payable December 30 to holders of record December 10.

Cincinnati, New Orleans & Texas Pacific.—Common, \$4.00, semi-annually; Extra, \$3.00, both payable December 24 to holders of record December 7.

Cincinnati Union Terminal.—Preferred, 1½ per cent, payable December 31 to holders of record December 20.

Missouri Pacific.—Preferred, \$1.25, quarterly; Extra, \$1.50; both payable December 31 to holders of record December 13.

Pittsburgh & West Virginia.—Common, 1½ per cent, quarterly, payable January 31 to holders of record January 15.

Average Prices of Stocks and of Bonds

	Last Dec. 3	Last week	Last year
Average price of 20 representative railway stocks.	129.78	128.50	129.33
Average price of 20 representative railway bonds..	92.70	92.32	93.96

* * *



On the Cascade Line of the Southern Pacific, Near Lowell, Oregon

Railway Officers

Executive

John Duffy, assistant to the president of the Lehigh Valley, has been elected vice-president in charge of traffic with headquarters as before at New York, succeeding **J. A. Middleton**, deceased.

Howard S. Palmer, who has been appointed vice-president in charge of accounts of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., was born on January 13, 1885, at East Sumner, Me. He entered railway service in 1901 as telegraph operator in the operating department of the old Portland & Rumford Falls



Howard S. Palmer

Railroad, which is now a part of the Maine Central. In 1907, he entered the service of the New Haven as bureau head in the accounting department. He subsequently served as assistant traveling auditor, express accountant for four years at Boston, Mass., statistical accountant, auditor of disbursements and federal auditor. He was appointed comptroller of the New Haven in 1920, in which position he served until his recent appointment as vice-president in charge of accounts.

T. H. B. McKnight, vice-president of the Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago & St. Louis, retired from active duty on December 1, under the pension regulations. Mr. McKnight was born in Pittsburgh on November 15, 1859. He entered railway service in 1877 as messenger in the office of the second vice-president and treasurer of the Pennsylvania, Lines West of Pittsburgh. He served in various positions in the treasury department and in May, 1891, he was advanced to the position of treasurer of the same road and its subsidiary companies. In March, 1920, at the conclusion of the period of federal control, Mr. McKnight was appointed treasurer of the Pennsylvania Railroad at Pittsburgh. In 1925 he relinquished his duties as treasurer to devote his

entire time to the various western subsidiaries of the system, and in April, 1928, he was elected vice-president of the Pennsylvania Company and the



T. H. B. McKnight

Pittsburgh, Cincinnati, Chicago & St Louis. He was elected to the same office by the Waynesburg & Washington and the Ohio River & Western in June, 1928.

J. A. Droege, who has been appointed vice-president and general manager of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., was born in Deer Park, Md. He entered railway service in 1880 as telegrapher with the Baltimore & Ohio. He later served with the same road as agent and stenographer. He also



J. A. Droege

served with the Chesapeake & Ohio, the Norfolk & Western, the East Tennessee, the Virginia & Georgia (now part of the Southern), the Florida Southern (now part of the Atlantic Coast Line), and the Pensacola & Southern in various capacities and in the latter part of 1898 entered the service of the Lehigh Valley as trainmaster. In 1900 he was appointed superintendent of the same road where he remained

until 1904. On the latter date, Mr. Droege became superintendent of the Worcester division of the New Haven, with headquarters at Providence, R. I. In February, 1908, he was transferred in the same capacity to the Shore Line division and in September, 1913, he was promoted to the position of general superintendent of the Western Grand division. He remained in the latter position until May, 1917, when the New Haven was split into three grand divisions and Mr. Droege was appointed general superintendent of the newly created New York division and terminals. He was appointed general manager in October, 1925, the position which he held at the time of his recent appointment to his new position as vice-president.

Carroll R. Harding, engineer of standards of the Southern Pacific, has been promoted to assistant to the president, with headquarters as before at San Francisco, Cal. While Mr. Harding, in his new position, will be charged with responsibilities as assigned by the president, he will continue his former duties in charge of the inspection of material and equipment for the system and will remain as chairman of the railroad's committees on maintenance of way standardizing and on in-



Carroll R. Harding

surance. He was born at Hallowell, Me., on July 4, 1888, and graduated from a course in civil engineering at Cornell University in 1910. Before entering the employ of the Southern Pacific in 1913, he was employed by the American Bridge Company and also made engineering surveys in Alaska, Costa Rica and Michigan. His first position with the Southern Pacific was that of draftsman and in February, 1914, he was advanced to chief draftsman. In 1916 Mr. Harding was promoted to assistant consulting engineer, with headquarters at New York, then being further promoted to consulting engineer, with headquarters at the same point, in June, 1923. In June, 1925, he was promoted to engineer of standards and his headquarters were removed to San Francisco. This position he held at the time of his recent appointment.

Financial, Legal and Accounting

In view of the increased duties which have for a long period of years been turned over to the secretary's office, the board of directors of the Pennsylvania at a recent meeting created the new position of vice-president-secretarial departments. **Lewis Neilson**, secretary of the company at Philadelphia, Pa., has been elected to the new post and **J. Taney Willcox**, assistant secretary, with headquarters at Philadelphia, succeeds Mr. Neilson as secretary. Mr. Neilson has been secretary of the Pennsylvania for nearly 29 years. He was born at



Lewis Neilson

Florence, N. J., in 1860, and was educated at the University of Pennsylvania. He entered the service of the Pennsylvania as weighing clerk in 1881 and in 1883 he became stenographer to the fourth vice-president, later being appointed chief clerk. In 1897 he became chief clerk to



J. Taney Willcox

the secretary. He was advanced to the position of assistant secretary later and in 1901 he was appointed secretary, which position he held continuously until his recent appointment as vice-president-secretarial departments. Mr. Willcox was born in Glen Mills, Delaware County, Pa., in 1886. He was admitted to the bar in 1907 and in 1909 became

associated with the law offices of the late Thomas DeWitt Cuyler. In 1910 he was appointed assistant to the secretary of the Pennsylvania, and in 1912, he was promoted to assistant secretary of that road and its various subsidiaries. Mr. Willcox was granted a leave of absence in 1917 to enter military service, serving as captain in the Embarkation Service and later in France under Brigadier-General W. W. Atterbury, who was director-general of transportation, A. E. F. Mr. Willcox returned to the United States in 1919, resuming his duties as assistant secretary of the Pennsylvania. He resigned from the service of that road in January 1920, to enter other work, but re-entered the service as assistant secretary in January 1921. In addition to being assistant secretary, Mr. Willcox has also served as transfer agent since 1925.

Operating

William H. Williams, inspector of service and commissary agent of the Delaware, Lackawanna & Western, has been appointed superintendent of dining car and restaurant service for that road, with headquarters at Hoboken, N. J., succeeding **F. A. Stine**, resigned.

B. H. Hudson, superintendent of the Sunbury division of the Pennsylvania, with headquarters at Sunbury, Pa., has been appointed superintendent of the Camden terminal division and the West Jersey & Seashore Railroad, with headquarters at Camden, succeeding **J. F. Henry**, transferred. He will in turn be succeeded by **J. L. Gressitt**, division engineer of the Fort Wayne division. **W. R. Elsey** has been appointed superintendent of floating equipment, with headquarters at New York, replacing **F. L. DuBosque**, retired.

Howard Ginter, chief clerk to the vice-president of the Central region of the Pennsylvania, has been promoted to superintendent of passenger transportation of the Western region, with headquarters at Chicago, succeeding **J. M. Symes**, who has been appointed superintendent of transportation of the Eastern region, with headquarters at Philadelphia, Pa., **J. F. Henry**, superintendent of the Atlantic division, with headquarters at Camden, N. J., has been transferred to the Columbus division, with headquarters at Columbus, Ohio, succeeding **R. C. Miller**, who has been appointed acting assistant chief engineer at Philadelphia. **C. E. Adams**, division engineer of the Philadelphia Terminal division, has been promoted to superintendent of the Grand Rapids division, with headquarters at Grand Rapids, Mich., to succeed **Taber Hamilton**, who has been transferred to the mechanical department.

John Coenen, who has been promoted to assistant to the vice-president in charge of operation of the Chicago Great Western, with headquarters at Chicago, has been engaged in railway

work for 33 years. He was born at Marion, Iowa, on June 14, 1878, and graduated from the high school in that city in 1895. After attending the Cedar Rapids (Iowa) Business College he entered railway service in 1896 as a stenographer-clerk on the Chicago, Milwaukee & St. Paul at Marion. For the following six years Mr. Coenen served on the Milwaukee at Perry, Iowa, and Cedar Rapids, Kansas City, Mo., and Chicago as a clerk and stenographer. In 1902 he became secretary to the general manager of the Chicago, Rock Island & Pacific at Chicago. In the following year he was appointed chief clerk to the superintendent of the Rock Island at Estherville, Iowa, where he remained until November of that year when he was appointed assistant chief clerk to the general manager of the Chicago & Alton at Chicago. In December, 1908, he became chief clerk to the superintendent of the Great Western at Chicago, then being advanced through the positions of chief clerk to the general superintendent of transportation in 1918, chief clerk to the general manager in 1920 and chief clerk to the vice-president in May, 1929. Mr. Coenen's further promotion to assistant to the vice-president in charge of operation became effective on November 9, after 21 years of service with that railway.

Traffic

K. N. Middlekauff, city passenger agent for the Union Pacific at Denver, Colo., has been promoted to assistant general passenger agent at that point, succeeding **I. W. Carter**, who has resigned to engage in other business.

W. W. Hale, assistant to the freight traffic manager of the Southern Pacific, has been appointed assistant to the general freight traffic manager, with headquarters as before at San Francisco, Cal.

N. C. Davis, assistant car distributor of the Norfolk & Western, with headquarters at Williamson, W. Va., has been appointed district manager of the newly created coal bureau, with headquarters at Detroit, Mich.

C. F. Farmer, assistant general freight agent of the Baltimore & Ohio, with headquarters at Cleveland, Ohio, has been appointed general freight agent in charge of perishable freight traffic for the system, with headquarters at Baltimore, Md.

Ira H. Hubbel, freight traffic manager of the New York Central, with headquarters at New York, has been appointed assistant traffic manager, with the same headquarters. He will be succeeded by **D. E. Gelatt**, assistant freight traffic manager at the same point. **G. H. Clark**, general freight agent, has been appointed assistant freight traffic manager, with headquarters as before at New York. **M. R. Garrison**, assistant general freight agent at New York, has

been appointed general freight agent in charge of rates and divisions, succeeding Mr. Clark. F. J. Hahn, Jr., will succeed Mr. Garrison as assistant general freight agent at New York, and R. J. Hopper has been appointed assistant general freight agent at the same point.

O. P. Bartlett, recently appointed passenger traffic manager of the Southern Pacific, with headquarters at Chicago, Ill., has been in railway service since 1891, his first connection having been with the Louisville & Nashville. He remained with that road until 1911, at which time he entered



O. P. Bartlett

the traffic department of the Southern Pacific. He served with the latter road continuously until September, 1918, when he left railroad work for a short period. He returned to the Southern Pacific in June, 1925, as passenger assistant, in which position he served until November of this year, when he was promoted to the position of passenger traffic manager.

Engineering, Maintenance of Way and Signaling

A. Chinn, district engineer of maintenance of way of the Nebraska district and supervisor of work equipment of the Lines West of the Missouri river of the Chicago, Burlington & Quincy, with headquarters at Lincoln, Neb., resigned on December 1, to become chief engineer of the Chicago & Alton, with headquarters at Chicago, to succeed R. A. Cook, who has resigned.

G. K. Farner, division engineer of the Racine & Southwestern division of the Chicago, Milwaukee, St. Paul & Pacific, with headquarters at Beloit, Wis., has been transferred to the La Crosse division, with headquarters at Portage, Wis., succeeding F. R. King, who has resigned. C. Holland has been appointed division engineer of the Racine & Southwestern division to succeed Mr. Farner.

W. B. Wood, assistant to the general manager of the Western region of the Pennsylvania, with headquarters at Chicago, has been appointed engineer,

Baltimore improvements, at Baltimore, Md., where he will take charge of the electrification project in that city. R. C. Miller, superintendent of the Columbus division, with headquarters at Columbus, Ohio has been appointed acting assistant chief engineer, with headquarters at Philadelphia, Pa.

E. H. Piper, district engineer of maintenance of way of the Wyoming district of the Chicago, Burlington & Quincy, with headquarters at Alliance, Neb., has been transferred to the Nebraska district, with headquarters at Lincoln, Neb., and has also been appointed supervisor of work equipment of the Lines West of the Missouri river, succeeding A. Chinn, who has resigned to accept service with another company.

N. W. Smith, general superintendent of motor service of the Pennsylvania, with headquarters at Philadelphia, Pa., has been appointed assistant chief engineer, with the same headquarters. Mr. Smith entered the service of the Pennsylvania in July, 1887, as clerk, subsequently serving successively as rodman, assistant supervisor, supervisor, assistant engineer, division engineer, general superintendent, assistant gen-

eral manager, and general superintendent of motor service. A detailed sketch of Mr. Smith's railway career, together with a reproduction of his photograph appeared in the *Railway Age* of May 11, 1929, page 1138.

Obituary

Robert F. Whitmer, president of the Central West Virginia & Southern, with headquarters at Philadelphia, died at his home in Chestnuthill on November 26.

James H. Harris, engineer maintenance of way of the New York Zone of the Pennsylvania, with headquarters at New York, died suddenly of heart disease on December 2, at his home in Elizabeth, N. J. Mr. Harris was born in England on December 8, 1867. He was educated at the University of Virginia and entered railway service in 1894, as roadman for the Norfolk & Western. He subsequently served successively as assistant supervisor, supervisor and division engineer, then being appointed engineer maintenance of way of the Pennsylvania at New York, the position he held at the time of his death.

Benjamin F. Yoakum, Former Railway Executive, Dies

Benjamin F. Yoakum, financier and former railway executive, died on November 28, following a heart attack at his home, 1120 Fifth avenue, New York. Mr. Yoakum, who, at the time of his death, was chairman of the board of the Empire Bond & Mortgage Corporation and a director of the Seaboard Air Line and of the St. Louis-San Francisco, had, during his railway career, served as president of the Frisco and of the Chicago & Eastern Illinois.

He was born in Limestone county, Tex., in 1856, and first entered railway service in the construction department of the International & Great Northern while that road was building from Troup, Tex., to Palestine. Upon the completion of this line, Mr. Yoakum took a position in its passenger traffic department and later became division freight agent at San Antonio, Tex. When the building of the San Antonio & Arkansas Pass was begun he was placed in charge of traffic on that road and was advanced successively to assistant general manager and general manager. In April, 1893, Mr. Yoakum was appointed general manager of the Gulf, Colorado & Santa Fe and shortly afterwards became third vice-president of the same road.

He retained this latter position until 1896 when he was elected vice-president and general manager of the St. Louis-San Francisco. He served in this capacity until 1900, when he became president and general manager. In June, 1901, he relinquished the general managership but retained the presidency until March 1, 1904, when he became chairman of the board. From October, 1904, to May, 1913, he was chairman of the executive committee, meanwhile serving also as chair-

man of the board from December 1, 1909, to May, 1913.

Mr. Yoakum's connection with the Chicago & Eastern Illinois commenced with his election to the presidency in November, 1902. He served as chief executive of this road until April 7, 1904, when he became chairman of the board, a position which he retained until November 11, of the same year. On the latter date he became chairman of the



Benjamin F. Yoakum

executive committee and remained in that position until May, 1913. In addition, Mr. Yoakum was chairman of the executive committee of the Chicago, Rock Island & Pacific from 1905 until 1909.

Aside from his railway and financial activities Mr. Yoakum was an early proponent of farm relief legislation and one of the first sponsors of a co-operative plan for the marketing of agricultural products, such as is contemplated in the recent enactments of Congress.